DOCUMENT RESUME

ED 122 163 CE 007 226

| | |
|---|---|
| AUTHOR | Fairchild, Charles K. |
| TITLE | Development of Performance Standards for Employment Service. Volume 3: Methodology Guide. |
| INSTITUTION | Shelley (E. F.) Associates, Inc., Washington, D.C. |
| SPONS AGENCY | Manpower Administration (DOL), Washington, D.C. Office of Research and Development. |
| REPORT NO | DLMA-20-36-74-22-3; VT-102-790 |
| PUB DATE | 1 Aug 75 |
| CONTRACT | DL-20-36-74-22 |
| NOTE | 87p.; For related documents, see CE 007 224-227 |
| AVAILABLE FROM | National Technical Information Service, Springfield, Virginia 22161 (No price given) |
| EDRS PRICE | MF-$0.83 HC-$4.67 Plus Postage |
| DESCRIPTORS | Cost Effectiveness; Data Collection; *Employment Services; *Evaluation Criteria; *Evaluation Methods; Job Placement; Management Systems; *Performance Criteria; Performance Specifications; Productivity; Program Effectiveness; Statistical Analysis; *Systems Development |

ABSTRACT

The objective of the project was to develop methods for establishing output and input performance standards for the placement and placement-support functions of the U.S. Employment Service (ES). Volume 3 presents the conceptual framework, practical definitions, and feasibile methods for establishing and using performance standards. The ES labor exchange function is conceptualized as a production process at the labor area level, with employment, unemployment, growth, and composition of labor force and industry imposing constraints on performance. Placement standards can be developed for each individual labor area using statistical techniques to represent the effects of these constraints, and a comparison of actual performance with the standard used for evaluation and budgeting. For input standards, 13 functional activities were defined. Time ladders and questionnaires were developed for use with secondary data sources in a sample of labor areas to establish initial input standards. These standards would be based on the patterns of resource utilization, service, and quality characteristic of high-performing areas within each type of labor area. A detailed implementation plan is presented. (Author)

**********
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
**********

ED122163

VOLUME 3

# METHODOLOGY GUIDE

# DEVELOPMENT OF PERFORMANCE STANDARDS FOR ES

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Prepared by

E. F. Shelley and Company, Inc.
1730 Rhode Island Avenue, N. W.
Washington, D. C. 20036

Dr. Charles K. Fairchild
Project Director

August 1, 1975

This report was prepared for the Manpower Administration, U. S. Department of Labor, under research and development contract No. 20-36-74 22. Since contractors conducting research and development projects under Government sponsorship are encouraged to express their own judgement freely, this report does not necessarily represent the official opinion or policy of the Department of Labor. The contractor is solely responsible for the contents of this report.

VT-102-790
2

CE007226

| BIBLIOGRAPHIC DATA SHEET | 1. Report No. DLMA 20-36-74-22-3 | 2. | 3. Recipient's Accession No. |
|---|---|---|---|
| 4. Title and Subtitle<br>DEVELOPMENT OF PERFORMANCE STANDARDS FOR EMPLOYMENT SERVICE . Volume 3<br>Methodology Guide | | | 5. Report Date<br>August 1, 1975<br>6. |
| 7. Author(s)<br>Dr. Charles K. Fairchild | | | 8. Performing Organization Rept. No. |
| 9. Performing Organization Name and Address<br>E. F. Shelley and Company, Inc.<br>1730 Rhode Island Avenue, N. W.<br>Washington, D. C. 20036 | | | 10. Project/Task/Work Unit No.<br>11. Contract/Grant No.<br>DL 20-36-74-22 |
| 12. Sponsoring Organization Name and Address<br>U.S. Department of Labor<br>Manpower Administration<br>Office of Research and Development<br>601 D Street, N.W., Washington, D.C. 20213 | | | 13. Type of Report & Period Covered<br>Final 5/14/74 - 5/15/75<br>14. |

15. Supplementary Notes

16. Abstracts

The objective of the project was to develop methods for establishing output and input performance standards for the placement and placement-support functions of the United States Employment Service (ES). Volume 3, Methodology Guide, presents the conceptual framework, practical definitions and feasible methods for establishing and using performance standards. The ES labor exchange function is conceptualized as a production process at the labor area level, with employment, unemployment, growth, and composition of labor force and industry imposing constraints on performance. Placement standards can be developed for each individual labor area using statistical techniques to represent the effects of these constraints, and a comparison of actual performance with the standard can be used for evaluation and budgeting. For input standards, thirteen functional activities were defined. Time ladders and questionnaires were developed for use with secondary data sources in a sample of labor areas to establish initial input standards. These standards would be based on the patterns of resource utilization, service, and quality characteristic of high-performing areas within each type of labor area. A detailed implementation plan is presented.

17. Key Words and Document Analysis. 17a. Descriptors

Performance Evaluation, Placement, Productivity, Cost-Effectiveness, Economic Models, Job Analysis, Questionnaires, Statistical Analysis, Statistical Samples

17b. Identifiers/Open-Ended Terms

United States Employment Service (USES), Performance Standards, Balanced Placement Formula (BPF)



17c. COSATI Field/Group SA, 5C, SI, 14A

| 18. Availability Statement<br>Distribution is unlimited. Available from National Technical Information Service, Springfield, Va. 22151. | 19. Security Class (This Report)<br>UNCLASSIFIED | 21. No. of Pages<br>86 |
|---|---|---|
| | 20. Security Class (This Page)<br>UNCLASSIFIED | 22. Price |

NTIS-35 (REV. 3-72) THIS FORM MAY BE REPRODUCED USCOMM-DC 14952-P72

TABLE OF CONTENTS


| | Page |
|---|---|
| CHAPTER I | |
| INTRODUCTION | 1 |
| The Need for an Integrated Management System | 1 |
| CHAPTER II | |
| CONCEPTUAL FRAMEWORK | 5 |
| A. Overview of ES Labor Exchange Functions | 6 |
| B. An Ideal Development Program | 10 |
| C. An Approach | 13 |
| CHAPTER III | |
| METHODS FOR ESTABLISHING AND USING OUTPUT STANDARDS | 17 |
| A. Introduction: Practical Definitions of Output Standards | 17 |
| B. Methods for Establishing Output Standards | 31 |
| C. Using Output Standards | 46 |
| CHAPTER IV | |
| METHODS FOR ESTABLISHING INPUT STANDARDS | 61 |
| A. Introduction: Practical Definitions and Uses of Input | 61 |
| B. Methods of Data Collection and Analysis | 67 |
| C. Aggregating and Disaggregating Input Standards for Use at the Local Office, State and National Levels | 73 |
| CHAPTER V | |
| A PLAN FOR DEVELOPING AN INTEGRATED MANAGEMENT SYSTEM | 77 |
| A. Plan for Establishing ES Performance Standards | 77 |
| B. Further Development Steps | 82 |
| C. Limitations of Performance Standards | 83 |

# Chapter I

# INTRODUCTION

## The Need for an Integrated Management System

The federal-state employment security system of the United States, consisting of the U. S. Employment Service (ES), the Unemployment Insurance Service (UIS), and the 54 state and territorial employment security agencies, recently celebrated its 40th birthday. During its history, the system has assisted the nation in coping with the problems of the Great Depression and other less severe economic recessions, has supported the recruitment and relocation of manpower during wars and has played a significant role in the conduct of manpower development and training programs. Throughout this history, while the system has responded to changes in national needs and national priorities, the ES has continued to perform basic labor functions and the UIS has continued to administer the unemployment compensation system, both in accordance with the original mandates of the Wagner-Peyser Act.

In recent years, the government has developed a number of alternate structures for performing many of the ancillary functions which accrued to the ES and UIS over the years. The employment security system has been directed to focus its attention more directly on the services to employers, unemployed persons, and job seekers than at any time since 1960. Even within the somewhat narrower scope of activity, the system expends approximately $1 billion per year in administrative expenses, exclusive of unemployment compensation costs.

At the same time, the administration has requested that improved management and funding allocation methods be developed and applied. The UIS has developed a cost model, based (implicitly) on the concept that the UIS is a factory with measurable and concrete inputs (employer contributions and claims), concrete outputs (monetary and nonmonetary determinations, checks, and employer tax statements), and clearly definable production processes which can be optimized. The cost model is used to allocate UI funds based on expected workloads and staffing requirements derived from estimated minutes-per-unit, taking into account differing legal and administrative requirements in the different states. The cost model has been accepted as fair and reasonable by the states and by OMB for funding allocations.

While the ES has developed a performance-based allocation method and a number of management tools, the ES does not yet have a comprehensive management and budgeting system which is accepted by OMB and the states. A major reason is, of course, that the ES problem is inherently more complex. The ES has undertaken two initiatives, both currently incorporated as Presidential objectives, to improve funding allocation methods and management processes.

The first of these is the Balanced Placement Formula (BPF). First introduced in a limited way during the latter part of FY 1973, the BPF was applied nationally in the allocation of ES grants for FY 1975 and, with research-based revisions, for FY 1976. "The formula is designed to measure performance of each State agency during the most recent period for which data are available and to allocate funds for the operation of the agency, based on this performance." (BPF FY 1976 Handbook, p.1)

The second is a research and development program to develop performance standards for the ES. This volume reports the methods and techniques developed in the first phase of that program. As stated in the original Request for Proposals:

> The primary objective of the demonstration project is to develop valid performance standards for Job Placement activities and the Placement Support Service functions. These standards will be used to reflect the effectiveness and the efficiency levels at which the various placement and support functions of the ES should be performed with consideration to both quantity and quality; to design a feasible system of methods and procedures for using such measures to assess the performance of state agencies in performing activities relative to the standards; and to design a system for the periodic revalidation of the standards.

After the project was started, BPF research was added as an explicit component. The results of the combined research form the basis for the present report.

The best summary of the current status of the BPF and the performance standards development is contained in the BPF FY 1976 Handbook, in a discussion of future directions for improvement, parts of which are extracted here (pp. 8-10):

- The formula may well be based in part on past performance and on potential for serving clients during the budget year. Research is expected to be carried out on ways to measure such potential validly, based on available resources. A major need is data on new hires in all industries instead of merely manufacturing. The allocations would be contingent in part on experience of the State in attaining the projected potential in each quarter of the budget year.

- Performance of each State may well be measured against standards for the State, instead of against national experience (or average). The performance standards project now underway and one planned for the immediate future are expected to provide the methodology and the data needed for output performance standards.

- Consideration may be given to grouping States according to similarity of size and homogeneity of environmental factors, as an interim replacement for national average. This was attempted for FY 1976 but suitable guidelines for valid groupings of States are not yet available.

- External factors affecting productivity of State agencies (instead of or in addition to unemployment) are likely to be built into future formulas, based on currently ongoing and projected research. Factors being considered include characteristics of job seekers, industrial mix, occupational mix, growth in employment, labor market conditions, size of labor force, and the like.

- Guidelines will likely be provided for applying the Balanced Placement Formula to labor market areas and to local offices on a quarterly basis, to detect strengths and shortcomings and to indicate corrective actions needed.

State, regional and national ES administrators and managers have generally accepted the concepts of performance standards and of a performance-based budgeting system, and they have supported improvements of the type described above, intended to correct for perceived inequities and inadequacies of the current BPF. To fully realize and utilize their potential, standards must be developed and applied in the context of an integrated management system concept, which relates output standards not only to budgeting but also to performance evaluation, the diagnosis of the causes of poor performance, and the development of performance improvement plans. Many of the needed elements of an integrated management system exist or are under development - output standards, input standards, methods for analyzing local office location and management practices, and the existing self-appraisal process.

The purpose of this volume is to set forth a conceptual framework for an integrated management system, to describe the elements of such a system that can be efficiently developed in the short run, and to present methodologies for developing and using elements not documented elsewhere.

- Chapter II presents a conceptual framework for the development process.

- Chapter III discusses alternate methods for developing models for projecting ES output (placement) performance, adjusted for the influence of external economic and other factors; and refining performance-based fund allocation system (BPF). Methods are presented for using the results of such models to:

  a. Compute expected ES performance at the labor area level and to set output standards.

  b. Simulate ES system response to changes in economic conditions and budget levels.

  c. From differences between actual and standard performance at labor area level, compute weighted sum to obtain a state summary score of actual performance compared to standard for BPF allocation.

d. As a byproduct, calculate and print funding allocations, including performance-adjusted supplemental allocations.

- Chapter IV provides detailed methods and plans which can be used to develop input resource utilization guidelines. Specific elements are:

  a. Sampling to develop input models based on resource utilization patterns of areas whose output performance is high compared with standards adjusted for external factors.

  b. Measuring staff time utilization, service percentages and key quality factors.

  c. Analysis of data to develop initial input standards for different types of labor areas.

  d. Aggregating and disaggregating input standards for local, state and national use.

- Chapter V returns to the theme of the integrated management system and discusses the need to refine the system for performance evaluation and improvement. It contains the following topics:

  a. A schedule for developing initial output and input standards during the next year.

  b. The need for validation and revalidation of performance standards.

  c. Limitations on performance standards and future development needs.

It should be noted at the outset and borne in mind throughout that the primary focus of Chapters III, IV, and V is upon specific steps that are believed feasible for implementation in the short run (i.e., within a one-year time frame), to improve ES management systems. The ideal long range approaches and the limitations of recommended short run steps are presented in Chapter II. The steps recommended in the remainder of the volume are designed to permit the development and implementation of new approaches by the beginning of FY 1977, given the current state of knowledge, while at the same time beginning a major evolutionary process that may take several years to complete.

## Chapter II

## CONCEPTUAL FRAMEWORK

The U. S. Employment Service is an organization whose overall mission may be described as providing labor market services and information to individuals, employers and other organizations. As noted in the Introduction, the specific purposes and objectives of the ES within this general mission have changed from time to time and may be expected to change in the future in response to national needs and priorities. Yet at any given point in time, the ES consists of a bundle of organizational and staff resources that must be managed to meet current objectives. The problem is to define the elements of an integrated management system such that the system itself can remain relatively stable and provide tools for management, not only in response to a specific set of objectives but also in response to changes in objectives.

For present purposes, the basic framework chosen is that of the ES as a labor exchange whose basic functions, processes and classes of outcomes are assumed to be relatively constant over time. The discussion of the ES labor exchange functions is based upon two assumptions which are fundamental to the development of the integrated management system models and methods presented subsequently in this volume.

First, the ES is a federal, state and local system, with each level constituting a subsystem having appropriate roles and functions. Second, the labor exchange (and related) functions exist only at the labor area level. By definition, a labor area or SMSA is an integrated social and economic system constituting the relevant economic and social environment within which ES labor exchange functions are actually performed and ES services delivered.*

Therefore, the federal and state levels of the ES system exist only to perform support functions (funding, interpretation of policy and law, training and technical assistance, management and evaluation) whose effect, however crucial, can only be measured in actual performance at the labor area level.

Within this context, the definition of specific purposes and objectives implies a series of related research and analysis steps that would be required to define specific configurations of ES resources optimally organized at the labor area level to meet those objectives. As an interim step, it is possible to develop tools for measuring how efficiently ES resources are being utilized to meet the current constellation of (loosely defined) objectives. The chapter discusses each of these subjects in turn.

---

* As used in this report, the term "labor area" is synonomous with the term "SMSA" (Standard Metropolitan Statistical Area), which is a defined labor area consisting of a central city with at least 50,000 population and surrounding counties. Much of the data needed is not regularly compiled for smaller areas.

## A. Overview of ES Labor Exchange Functions

A convenient model of the ES at the operational level is that of a production process. Figure 1 on the following page provides an overview of the ES labor exchange function, showing generalized inputs, processes and outputs.

### 1. External Environment

The external environment of the ES labor exchange at the labor area level includes all the economic and social conditions over which the ES has little or no control: growth, unemployment, industry mix and labor force composition, alternate placement channels. As indicated on the diagram by the arrows, the external environmental factors are hypothesized to impact on every aspect of ES activity, from determining the size and composition of the pools of job seekers and job openings from which the ES draws its users, to affecting the success of the ES in producing outcomes.

### 2. Internal Environment

ES performance at the labor area level may be constrained by factors that are internal to the federal-state system as a whole, but which are not under the control of local ES management: policies and laws, history, management structures, human and physical resources. The elements of the internal environment affect the identification processes (and therefore the composition of available users), the service techniques, and ultimately the quantity and quality of ES outputs.

### 3. Potential Users of ES Services and Identification Processes

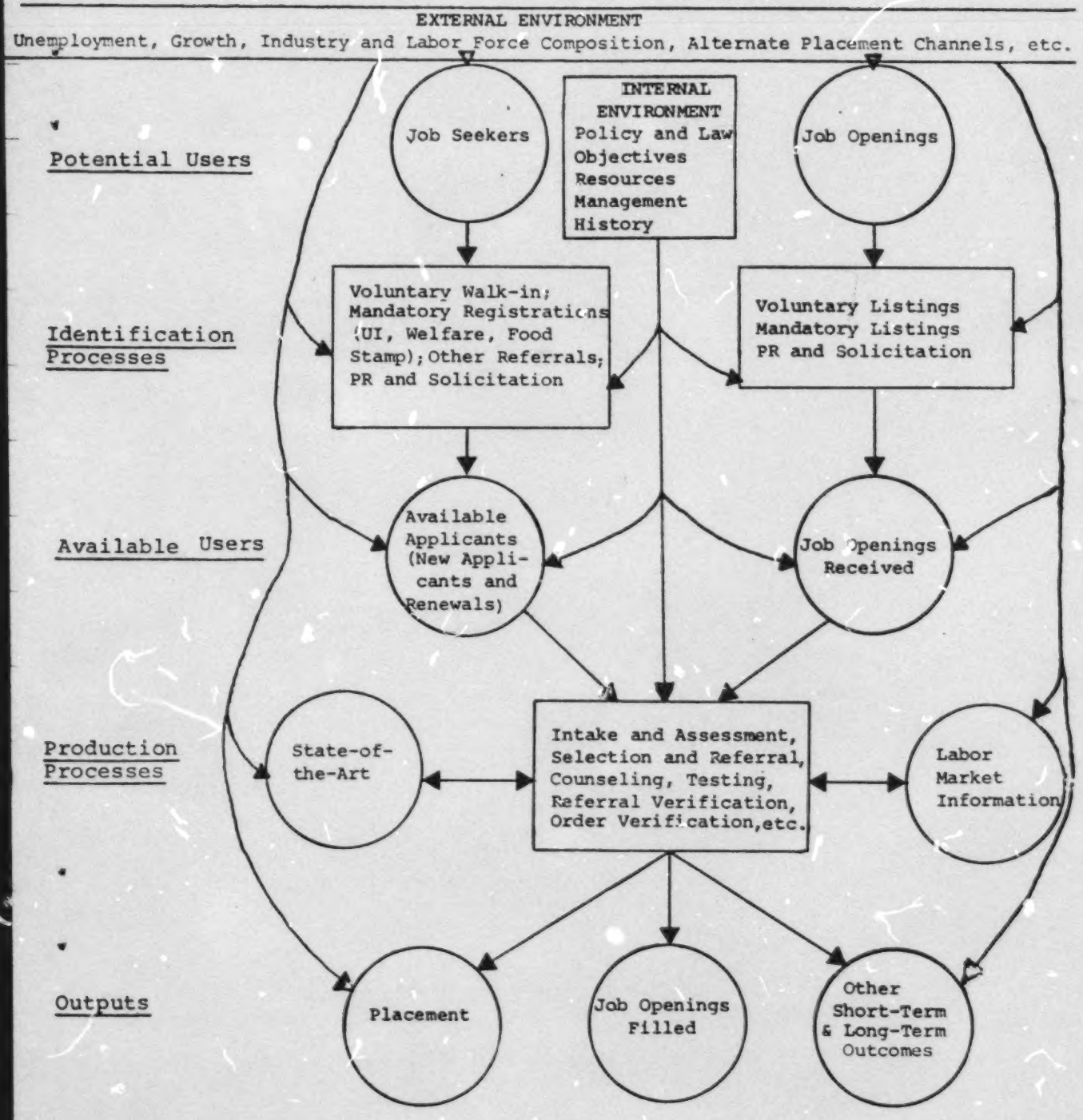
In the absence of clearly defined objectives, the potential users of the ES include all job seekers and all available job openings in a given labor area. A variety of identification processes results in the registration of applicants and the listing of job orders from the potential pools. The ES does not necessarily attempt to register all job seekers nor to list all job openings. The specific subset sought and obtained and the processes used vary with changes in ES objectives, laws and policies, and resources.

### 4. Production Processes

The ES attempts to match available applicants and job openings through a variety of techniques which can be called production processes. The categorization in Chapter IV of this volume identifies 13 discrete, measurable placement and placement support functions (which include identification processes). These processes both utilize existing state-of-the-art and labor market information as resources to the placement process and (potentially) contribute to the development of these

Figure II-1

## Block Diagram of Employment Service Labor Exchange Functions



resources. Therefore, improved techniques and better labor market information are (potential) direct byproducts of the basic labor exchange function, whether or not these outputs meet specific ES objectives for internal improvement or service to other organizations.

5. Outputs

The outputs from the system can be classified into two categories for practical reasons:

a. Applicants placed and job openings filled

These two types of outputs, including sub-classes of each, are the only ES outputs which are currently measured on a regular basis. As two sides of a coin, both measures indicate the completion of a man-job matching transaction and therefore indicate positive, concrete results from the ES production process, even though only limited data exist on the quality and permanence of each match.

b. Other short-term and long-term outputs related to applicants and employers

Short-term outputs: improved vocational preparation or vocational choice, better job search techniques, better labor market information, better job descriptions, etc.

Long-term outputs: increased lifetime earnings or incomes, reduced unemployment, higher productivity, increased family stability, etc.

Existing data collection and reporting systems lack the (relatively expensive) followup data and control group data necessary to measure the non-placement outputs and to estimate long-run effectiveness of placement-related outputs.

To be truly comprehensive and complete, an integrated management system should be based upon a model of the ES system that completely specifies all objectives, quantifies the potential for ES services in each labor area pursuant to those objectives, defines the optimum configuration of resources to meet that potential, and measures all ES outputs.

In concept, such a model could be developed from a series of hypotheses relating to each and every causal linkage indicated by an arrow in Figure II-1, and would consist of a series of structural equations describing the hypothesized relationships. Figure II-2 lists some of the hypotheses that should provide the basis for constructing and testing a model that relates

Figure IX-2

## Hypotheses Relating to Environmental Factors

| | External | | | | Size: | Internal | |
|---|---|---|---|---|---|---|---|
| | Unemployment Rate | Employment Growth Rate | Industry Composition | Labor Force Composition | Population Labor Force Employment Unemployment | Registration and Listing Requirements | Resources |
| Potential: | | | | | | | |
| Job Seekers | A rising rate over time increases the number and average quality within an area, reduces labor force participation, reduces the quit rate. | A high rate attracts new job seekers, increases quits but reduces layoffs. | Affects experience composition of job seekers | Determines demographic composition of job seekers | Larger means more | | |
| Job Openings | A rising rate reduces the rate of new hires, recalls and quits, increases layoffs | A high rate increases the new hire and recall rates, reduces layoffs | Determines composition in interaction with growth by industry and differential labor turnover patterns | Affects job requirements | Larger means more | | |
| Identification Processes and Available Users: | | | | | | | |
| Applicants | A rising rate leads to more applicants, particularly UI claimants and others covered by work test | | | Affects composition in combination with work test requirements | Larger size leads to low percentage of potential, due to competing hiring channels | UI, WIN, Welfare work test requirements increase number of applicants | More resources in relation to potential lead to more applicants and job listings; increase is at a decreasing rate |
| Job Openings | A rising rate reduces the number listed | High rate increases the number listed | Affects composition in combination with mandatory listings and through internal hiring channels | | | Mandatory listings increase job openings available | |
| Production Processes and Outputs: | | | | | | | |
| Individuals Placed | A rising rate reduces the placement rate by increasing competition and by increasing mandatory registrations, esp. UI; increases placement rate by raising quality of applicant | A high rate increases the placement rate by increasing demand for workers | The higher the degree of match between applicant capabilities and job requirements, the higher the placement and fill rates | | Larger size decreases placement rate and fill rate due to competing hiring channels | Reduce placement and fill rate by increasing registrations and job listings that have alternate placement channels | More resources in relation to available applicants and openings increase the placement and fill rates, but at a decreasing rate, assuming good quality of management, organization, office location, and use of the state-of-the-arts and labor market information |
| Openings Filled | A rising rate increases fill rate by increasing supply of qualified applicants and reducing available openings | A high rate reduces fill rate by reducing supply of qualified applicants and increasing available openings | | | | | |

environmental factors to ES output performance. In all candor, we must admit that the table of hypotheses was constructed after completion of the statistical analysis, not before. Therefore, some elements of the tested model are at variance with the hypotheses, and the statistical results presented in this report are consequently deficient. Even so, the limited results presented and the hypotheses stated provide the basis for future development of the model.

In preparing this report, it was not possible to fully elaborate the structural model and a detailed plan for developing it. Therefore, Section B merely outlines some of the research that would be necessary to develop such a model, for the purpose of identifying some of the practical limitations of our recommended short-run approach imposed by constraints of data, time, and resources.

## B. An Ideal Development Program

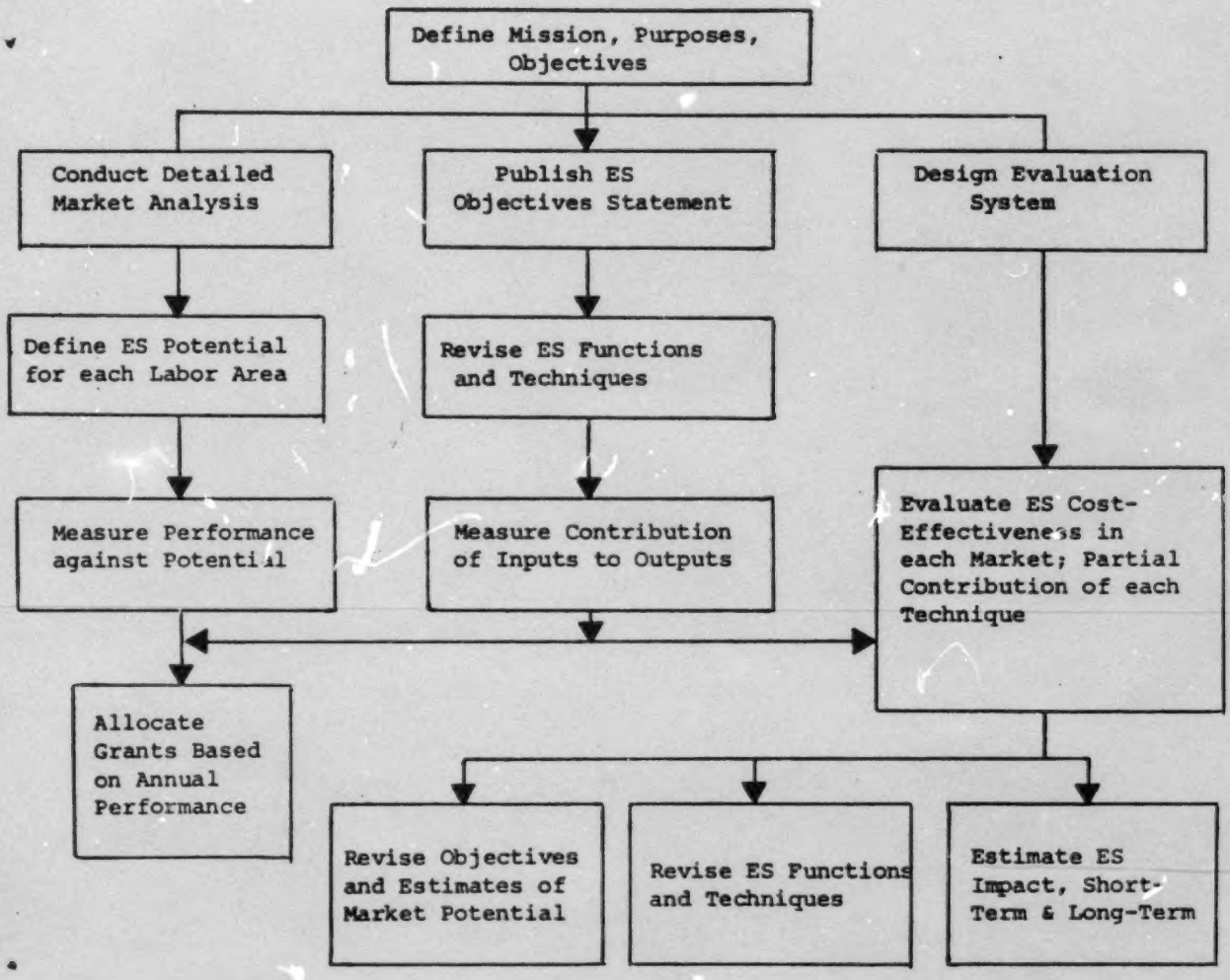
Ideally, there are three hierarchical levels of research which could and should be performed. The highest level question is, should there be a public agency involved in the labor exchange function, and if so, how should it be structured (along the lines of the existing public employment service or along other lines)? At the next level, a researchable question is, given that we have an ES, is it operating in a cost-effective manner to realize agreed-upon objectives? At the bottom level, given that we have an ES but only limited indicators of its effectiveness, are there any tools which we can use to better project performance, allocate resources, identify areas of poor performance, diagnose the causes and develop performance improvement plans?

If one were to assume the need and start from scratch to establish a public agency to perform labor exchange functions, or to redefine and redirect the ES, one would follow the steps implied by the diagram on the following page.

1. First, one would define or clarify the missions, purposes, and objectives of the agency. The objectives might include correction of inequities in the labor market, improved quality and availability of labor market information, reduction in unemployment, etc., all of which have been objectives of the ES at different times with differing degrees of emphasis. The definition of objectives would be used to define specific target populations for service, service modalities, and agency functions.

Figure II-3

## Block Diagram of an Ideal Development Approach


Define Mission, Purposes, Objectives
Conduct Detailed Market Analysis
Publish ES Objectives Statement
Design Evaluation System
Define ES Potential for each Labor Area
Revise ES Functions and Techniques
Measure Performance against Potential
Measure Contribution of Inputs to Outputs
Evaluate ES Cost-Effectiveness in each Market; Partial Contribution of each Technique
Allocate Grants Based on Annual Performance
Revise Objectives and Estimates of Market Potential
Revise ES Functions and Techniques
Estimate ES Impact, Short-Term & Long-Term

2. The second step would be to conduct a thorough and detailed analysis of the potential market for each function and service of the agency in each labor market. The analysis would take into account the existence of alternate public and private agencies fulfilling one or more of the objectives, and the probability and desirability of competing successfully with such existing agencies. The results of the analysis would indicate what geographic markets the public agency (ES) should attempt to serve, what segments of these markets should be pursued and what the maximum potential would be for achieving each objective in each market. Resources could then be allocated (or reallocated) and specific techniques could be developed (or refined) to achieve maximum performance in relation to the expected potential.

3. At the same time, a management system would be developed (or refined) to permit measurement of actual performance in relation to potential, to assess the efficiency with which resources were utilized, to prepare regular evaluations of the cost-effectiveness of the agency in relation to each objective and market, and to provide the basis for reallocating resources. This system would include several types of evaluations (policy, program and operations). As the system developed, specific standards would be established for output performance and for input resource utilization configurations in support of each output.

Implementation of such a program would require significant amounts of time and resources. Precise definitions of ES purposes and objectives do not exist, and based on recent indications* such definitions will be a long time coming. Little market analysis has been attempted to define ES potential in labor areas, in part because relevant data on labor force and employment does not exist. ES service techniques have often been studied and "evaluated", but never in a comprehensive labor exchange model that could permit estimation of the partial contribution of each service to measured outputs. And no ongoing system exists for measuring long-term ES outputs, a necessary component for an evaluation system.

*Curtis C. Aller, et al , An Employment Service Research and Development Strategy, (Center for Applied Manpower Research, March 1975) esp. Chapters III and IV; and the presentations and discussions at the Joint Conference of the Manpower Administration and the Interstate Conference of Employment Security Agencies on "The Role of the Public Employment Service 1975-1985", Chicago, April 22-24, 1975.

In actual practice, it may require 3 to 5 years to develop a truly comprehensive, integrated management system with all components rigorously specified, thoroughly researched and tested. In the meantime, the ES is consuming resources at the rate of about $500 million per year, is experiencing reductions in real annual resource allocations, and is under intense pressure from OMB to improve its operations. It is clear that the ES should not wait to begin the development of such a system, nor should it delay implementation of such elements of a system as may be developed and validated in the interim. The next section of this chapter outlines recommended interim steps.

C. An Approach

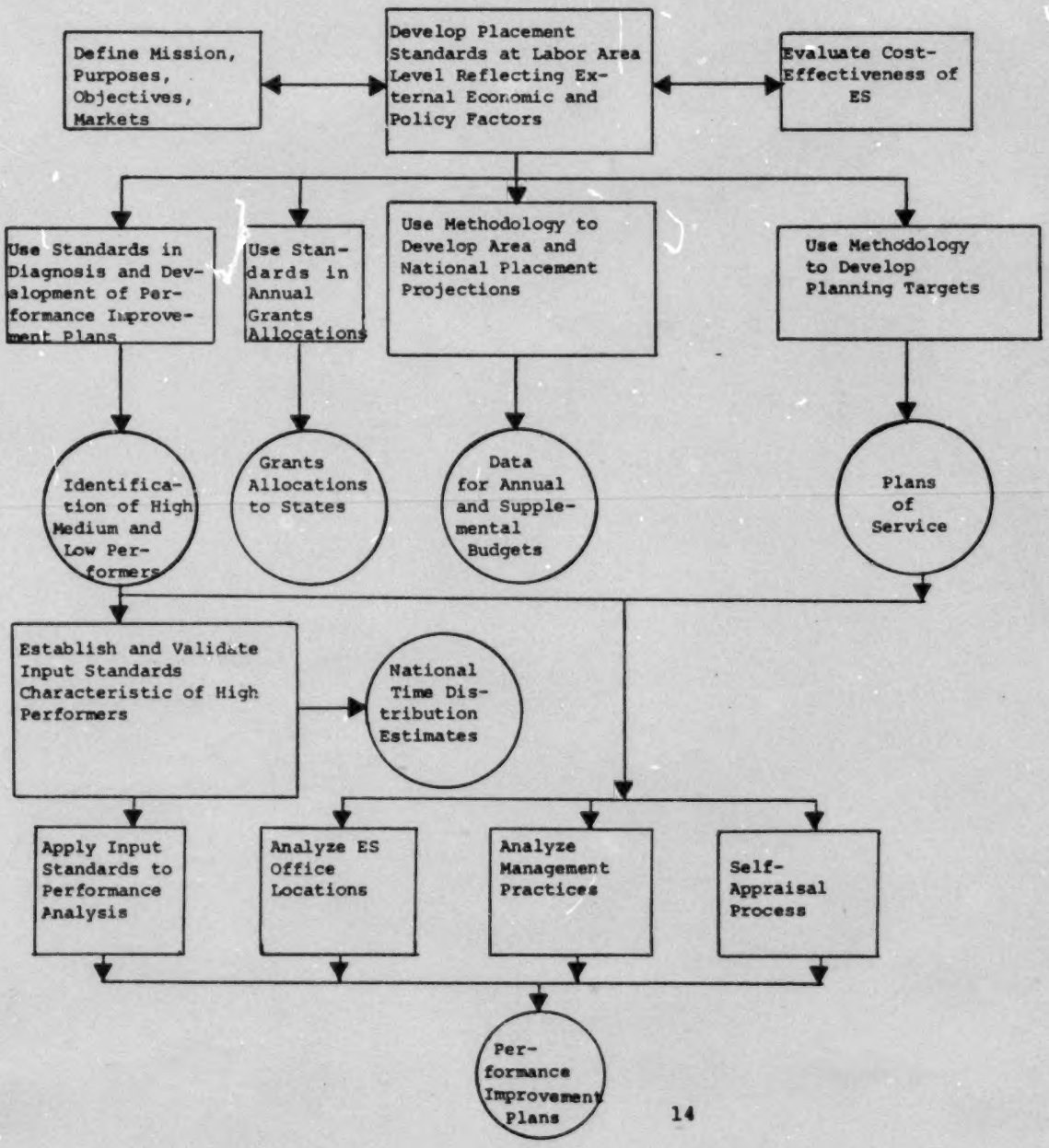
To meet immediate needs of ES executives for improved methods of budgeting, projecting performance, and developing performance improvement programs, a phased development program should be undertaken. Program objectives should be defined at each stage of the process to produce useful results immediately, while setting the stage for refinement and improvement in the next phase. The initial phase would utilize methodologies developed to date to meet needs in the short-run, while at the same time developing or refining methodologies for a next phase.

A constellation of existing short-run needs which must be met within the next fiscal year revolve around the establishment and utilization of standards for ES output performance and for input resource utilization. It would be desirable to set such standards taking into account reliable estimates of ES potential and the results of the evaluation of the ability of the ES to realize that potential, but such data will not be available. The diagram on the following page indicates specific development steps which appear to be feasible to undertake, complete and consolidate into an integrated management system during the next 18 months.

We recommend that the process begin by setting output standards or norms based on average ES performance as measured by indicators of ES effectiveness derived from extant measures of ES performance. This approach has already been used in the funding allocation process for FY75 and FY76, where the BPF measured the performance of each state as compared with the national average. For the next step we recommend computing adjusted performance averages at the labor area level. External economic and policy factors would be used to adjust the average for each labor area and to calculate expected performance levels according to the methodology described in Chapter III. The adjusted performance averages would be the basis for output standards or expected performance levels.

Figure II-4

ES Integrated Management System
Overview of the Initial Development and Utilization Process


Define Mission, Purposes, Objectives, Markets
Develop Placement Standards at Labor Area Level Reflecting External Economic and Policy Factors
Evaluate Cost-Effectiveness of ES
Use Standards in Diagnosis and Development of Performance Improvement Plans
Use Standards in Annual Grants Allocations
Use Methodology to Develop Area and National Placement Projections
Use Methodology to Develop Planning Targets
Identification of High Medium and Low Performers
Grants Allocations to States
Data for Annual and Supplemental Budgets
Plans of Service
Establish and Validate Input Standards Characteristic of High Performers
National Time Distribution Estimates
Apply Input Standards to Performance Analysis
Analyze ES Office Locations
Analyze Management Practices
Self-Appraisal Process
Performance Improvement Plans

14

The standards could be used for several purposes with actual uses at any point in time depending upon stage of development and level of acceptance:

1. Differences between actual and standard performance identify specific labor areas exhibiting substandard performance and indicate where other diagnostic tools should be used to identify the causes of poor performance, e.g., input standards.

2. The differences provide the basis for developing input resource utilization standards (minutes per unit, service ratios and key quality factors) by permitting the grouping of areas into high, medium and low performance categories (adjusted for external factors).

3. For annual budget allocations, the ratios of actual performance to standard at the labor area level would be combined through a weighted averaging procedure to yield a single performance score for each state. The state score would be used in the annual funding allocation process, in a manner similar to the current BPF, or for allocating supplemental resources.

4. The method for calculating expected performance could be used to estimate the performance increases to be achieved through optimally allocated supplemental resources, by labor area, state, and/or national total.

In summary, the recommended initial approach focuses upon the problem of getting a better understanding of "what is", what factors affect the current operations of the ES, and what ways can be found to improve those operations. It defers questions about "what ought to be", but permits incorporation of the answers to such questions when the answers are available in the future. The remainder of this volume describes the specific methods for developing and using output and input standards, including alternate methods where appropriate and the limitations on the results imposed by the current stage of development.

## Chapter III

## METHODS FOR ESTABLISHING AND USING OUTPUT STANDARDS

### A. Introduction

#### 1. Practical Definitions of Output Standards

Output standards have two primary uses: in the performance-based budgeting system, they can be the performance norms against which actual performance is measured; in performance evaluation systems, they can serve to identify low performing areas where other diagnostic tools may be applied to isolate and correct the causes of poor performance. ES output standards were first introduced in the Balanced Placement Formula. The development and application of the BPF was guided by one central assumption:

> The basic consideration which has dictated the content, organization, and structure of the BPF for FY 1976 is that placement in employment is the central mission of the Employment Service. Hence, the formula consists entirely of measures of placement of job seekers and of the filling of job openings. (BPF Handbook, p. 11.)

Pursuant to that assumption, the BPF for FY 1976 consisted of some 30 placement (output)-related performance ratios reflecting quantitative and qualitative aspects of the placement process. For each of the ratios, an output standard was established - the national average for the ratio - and the performance of each State was compared to that standard.

Common sense and theory, however, suggest that it is not reasonable to expect all ES agencies to perform equally, because they operate under different environmental conditions that affect performance. Also, as cited in Chapter I, the BPF Handbook also suggested the need for other methods of setting state output standards, including the reflection of size and environmental factors. A conceptual framework was presented in Chapter II where (in theory) estimates of ES performance potential could be derived from a knowledge of specific objectives by examining the labor market, the job market and the existence of competing institutions in each labor area. Such an ideal model could yield specific performance norms that would be standards for the area. Given the current realities it is not possible to develop such norms in the short run.

With certain assumptions, however, it is possible to develop output standards based on estimates of ES output achievement which are reasonable to expect, given economic and social conditions:

1. Assume that output standards should be "norms" or "pars" that are attainable by ES management of average quality.

2. Assume that average performance of ES organizations in similar labor areas and under similar economic conditions is an adequate basis for setting the norms.

3. Assume that the net effect of external and internal environmental conditions on ES output performance can be measured directly (without a complete model of causality) with sufficient accuracy and validity for purposes of evaluating local ES performance and allocating resources.

The type of output standard which can currently be developed can then be stated as follows:

> The output standard is an expected average level of performance based on average performance of similar labor areas, and attainable by management of average quality, taking into account external social, economic, policy and law factors.

For the future, it is appropriate to pursue the development of measures of ES potential that would lead to performance norms that are sounder conceptually than those based on averages. In the meantime, the "average" is known to be attainable. In actual use, for certain purposes, it may be desirable to set the actual "norms" at some percentage higher or lower than the average, i.e., to reflect "standards of excellent performance" or "minimum acceptable level of performance." Because these are based on the average, and because use of such variations depends entirely on management purposes, the balance of the report refers only to output performance standards based on expected average level of performance adjusted for labor market conditions and other factors.

Such standards can begin to be established using existing sources of data and techniques. Although the specific form of the output standards may vary somewhat depending upon the method used to develop standards, in general, the goal would be to develop standards for each labor area for each of the indicators used in the funding allocation process.

Table III-1 on the following page shows the FY 1974 national averages for each of the performance indicators used in the FY 1976 BPF. To use standards in funding allocation would require a standard for each labor area for each indicator.

Table III-1. FY 1974 National Averages of Performance Indicators Used in the FY 1976 BPF

| INDICATOR | AVERAGE |
|---|---|
| **Quantitative** | |
| Individuals Placed per Man-Year Worked (IP/MY) | 139.2 |
| Placement Transactions per Man-Year (P/MY) | 284.3 |
| New Applicants and Renewals as a percent of the Number Unemployed (AR/U) | 80.1 |
| Individuals Placed as a Percent of New Applicants and Renewals (IP/AR) | 26.6 |
| Nonagricultural Openings Received as a Percent of Employment (OR/E) | 10.0 |
| Nonagricultural Openings Filled as a Percent of Openings Received (OF/OR) | 62.3 |
| Agricultural Openings Filled as a Percent of Openings Received | 96.2 |
| **Qualitative** | |
| Target Group Individuals Placed as a Percent of Target Group New Applicants and Renewals: | |
| Veterans | 27.3 |
| Minority | 32.7 |
| Poor | 37.3 |
| UI Claimants | 14.8 |
| Migrants (FY75) | 45.8 |
| Women | 25.4 |
| Handicapped | 28.0 |
| Older Workers | 17.7 |
| Youth | 33.7 |
| Individuals Counseled as a Percent of New Applicants and Renewals | 5.8 |
| Counseled Individuals Placed as a Percent of Individuals Counseled | 23.1 |
| Openings Filled as a Percent of Openings Received, by: | |
| Duration: 1-3 Days | 95.0 |
| 4-150 Days | 78.2 |
| Over 150 Days | 53.1 |
| Wage Rate: Under $2.50 | 71.3 |
| $2.50-3.39 | 60.3 |
| $3.40 and over | 52.5 |
| Occupational Level: I | 47.8 |
| II | 55.1 |
| III | 60.2 |
| IV | 64.5 |
| V | 88.5 |
| VI | 79.8 |

The implications of this requirement are discussed in Section B with respect to alternate methodologies. For other purposes, however, fewer indicators can be used, because previous research shows that many of the 30 BPF measures are highly interrelated (see Volume 2 of this report for details) and therefore are not independent indicators of performance.

2. Measures of ES Performance and Environmental Factors

Research completed to date has identified a number of external and internal environmental factors related to various measures of ES performance. This section summarizes the results (presented in more detail in Volume 2, Chapter II) of statistical analyses performed to date, presents tables of results of analyses at the labor area level, identifies gaps in the tests performed to date, and suggests additional tests that should be performed in developing the model. Statistical analysis results are presented in the tables on the following pages.

An important criterion for selecting the specific recommended performance measures and environmental factors was that the data are available from existing secondary sources -- ES data systems or DOL publications -- and do not require primary data collection.

(In the research conducted to date, data were used for all states; at the labor area level, however, time and resource constraints permitted assembly of performance data for only 80 of the 150 major labor areas and precluded compilation of man-year resource data, because these are not regularly reported to the national office for sub-state areas.)

a. Measures of ES Performance

Performance indicators in current use by the ES consist of both "quantitative" and "qualitative" measures, the latter consisting of measures of service to specific target groups, qualitative aspects of job openings filled, etc. The following discussion is confined to quantitative measures, with qualitative measures deferred to Section B.3.

Three measures of ES performance are recommended for use as the key performance indicators. These three measures were selected because the indicators are not significantly affected by state or local policy with respect to applicant registration or order taking, because the data can be verified, and because they represent key aspects of the labor exchange function.

(1) Productivity: Individuals placed per man-year worked (IP/MY)

We recommend this as the key indicator of the efficiency with which ES resources are utilized, given data available from ES data systems.

## Table III-2

Selected ES Performance Measures for the First Half of FY 1975 and External Factors at the Labor Area Level for 80 SMSA's and 48 Balance-of-State Areas:

| | Mean | Standard Deviation |
|---|---|---|
| Performance Measures: | | |
| Individuals Placed as a Percent of New Applicants and Renewals | 22.89 | 7.84 |
| Openings Filled as a Percent of Openings Received | 67.29 | 10.77 |
| Individuals Placed as a Percent of the Number Unemployed | 76.02 | 51.91 |
| Openings Filled as a Percent of Nonagricultural Employment | 3.52 | 2.51 |
| Explanatory Variables | | |
| Rate of Growth of Employment 10/73 - 10/74 | 3.38 | 5.08 |
| Area Employment as a Percent of National Employment, 10/74 | .78 | .77 |
| Area Unemployment as a Percent of National Unemployment, CY74 | .78 | .85 |
| Unemployment Rate, CY74 | 5.39 | 1.71 |
| Percent of Employment in: | | |
| Construction | 5.70 | 1.79 |
| Manufacturing | 23.48 | 10.10 |
| Government | 19.04 | 6.90 |
| UI Claimants as a Percent of New Applicants and Renewals | 26.15 | 14.60 |
| Size Class:* | | |
| Over 3 Million | .023 | .152 |
| 1-3 Million | .070 | .257 |
| Under 1 Million | .531 | .501 |
| Balance-of-State | .375 | .486 |

* Dummy variables. Mean indicates percent of the 128 observations in each size class.

Table III-3

Selected ES Performance Measures for the First Half of FY 1975 and External Factors at the Labor Area Level for 80 SMSA's and 48 Balance of State Areas:

Correlations between Performance Measures and Explanatory Variables

| Explanatory Variables | Performance Measures: Individuals Placed as a Percent of New Applicants and Renewals | Openings Filled as a Percent of Openings Received | Individuals Placed as a Percent of the Number Unemployed | Openings Filled as a Percent of Nonagricultural Employment |
|---|---|---|---|---|
| Rate of Growth of Employment 10/73 - 10/74 | .279 | .359 | .328 | .440 |
| Area Employment as a Percent of National Employment, 10/74 | -.066 | -.114 | -.284 | -.246 |
| Area Unemployment as a Percent of National Unemployment, CY74 | -.046 | -.039 | -.357 | -.203 |
| Unemployment Rate, CY74 | -.118 | .016 | -.497 | -.060 |
| Percent of Employment in: | | | | |
| Construction | .150 | .173 | .262 | .443 |
| Manufacturing | -.308 | -.195 | -.331 | -.350 |
| Government | .265 | .365 | .301 | .612 |
| UI Claimants as a Percent of New Applicants and Renewals | -.543 | -.336 | -.359 | -.348 |
| Size Class: | | | | |
| Over 3 million | -.006 | -.085 | -.124 | -.093 |
| 1-3 Million | -.066 | -.233 | -.181 | -.163 |
| Under 1 Million | -.196 | -.284 | -.139 | -.273 |
| Balance of State | .239 | .442 | .278 | .397 |

Table III-4

Matrix of Correlations Among Explanatory Variables used in the Analysis of External Factors on ES Performance at the Labor Area Level for 80 SMSA's and 48 Balance of State Areas

| Explanatory Variables | Correlations | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| (1) Rate of Growth of Employment 10/73 - 10/74 | -.067 | -.010 | .089 | .300 | -.252 | .422 | -.091 | -.130 | -.139 | -.539 | .670 |
| (2) Area Employment as a Percent of National Employment, 10/74 | | .930 | .158 | -.275 | .192 | -.124 | .035 | .700 | .290 | -.459 | .102 |
| (3) Area Unemployment as a Percent of National Unemployment, CY74 | | | .422 | -.295 | .189 | -.055 | .043 | .593 | .282 | -.491 | .172 |
| (4) Unemployment Rate, CY74 | | | | -.237 | -.001 | .036 | .169 | .069 | .092 | -.148 | .083 |
| Percent of Employment in: | | | | | | | | | | | |
| (5) Construction | | | | | -.484 | -.468 | -.148 | -.180 | -.086 | -.068 | .172 |
| (6) Manufacturing | | | | | | -.478 | .251 | .023 | -.103 | -.002 | .050 |
| (7) Government | | | | | | | -.201 | -.105 | -.054 | -.306 | .376 |
| (8) UI Claimants as a Percent of New Applicants and Renewals | | | | | | | | .046 | .020 | .013 | -.038 |
| Size Class: | | | | | | | | | | | |
| (9) Over 3 Million | | | | | | | | | -.043 | -.165 | -.120 |
| (10) 1-3 Million | | | | | | | | | | -.293 | -.213 |
| (11) Under 1 Million | | | | | | | | | | | -.825 |
| (12) Balance of State | | | | | | | | | | | 1.000 |

## Table III-5

Summary of Regression Analysis of External Factors on Selected ES Performance Measures at the Labor Area Level for the First Half of FY 1975 for 80 SMSA's and 48 Balance of State Areas

Regression Coefficients (b)
BETAs (B)
Percent of Variance Explained by Each Factor (Br)

| Explanatory Variables | Individuals Placed as a Percent of New Applicants and Renewals (IP/AR) | | | Individuals Placed as a Percent of the Number Unemployed (IP/U) | | | Openings Filled as a Percent of Openings Received | | | Openings Filled as a Percent of Nonagricultural Employment (OF/Emp) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | b | B | Br | b | B | Br | b | B | Br | b | B | Br |
| Rate of Growth of Employment 10/73 - 10/74 | .12 | .078 | .022 | 1.11 | .109 | .036 | - .03 | -.014 | .005 | .03 | .061 | .027 |
| Area Employment as a Percent of National Employment, 10/74 | -7.07* | -.694* | .046* | -53.68* | -.796* | .226 | -8.98* | -.642* | .073* | -1.65* | -.506* | .125* |
| Area Unemployment as a Percent of National Unemployment, CY74 | 4.91* | .532* | .024* | 26.49* | .434* | .155 | 6.34* | .500* | .020* | .12 | .041 | .00[illegible] |
| Unemployment Rate, CY74 | -1.05* | -.229* | .027* | -19.07* | -.628* | .312 | - .64 | -.102 | .002 | --- | --- | --- |
| Percent of Employment in: | | | | | | | | | | | | |
| Construction | - .55 | -.126 | .018 | -5.69* | -.196* | .051 | - .47 | -.078 | .014 | .19* | .135* | .060* |
| Manufacturing | - .17* | -.219* | .067* | -1.48* | -.287* | .095 | - .13 | -.122 | .024 | .01 | .040 | .014 |
| Government | -..03 | -.026 | .007 | .17 | .022 | .007 | .16 | .103 | .037 | .13* | .357* | .219* |
| UI Claimants as a Percent of New Applicants and Renewals | - .25* | -.466* | .253* | .66* | .186* | .067 | - .20* | -.271* | .091* | -.04* | -.233* | .081* |
| Size Class: | | | | | | | | | | | | |
| Over 3 Million | 9.91* | .192* | .001* | --- | --- | --- | --- | | | 4.95* | .300* | .028* |
| 1-3 Million | --- | --- | | 87.89* | .435* | .079 | -13.10* | -.313* | .073* | --- | | |
| Under 1 Million | -1.63 | -.104 | .020 | 8.25 | .080 | .011 | -9.00* | -.418* | .119* | -.97 | .194 | .044 |
| Balance of State | 2.36 | .146 | .035 | 35.84* | .336* | .093 | --- | | | .51 | .099 | .039 |
| Constant | 43.89 | | | 261.41 | | | 86.67 | | | 2.06 | | |
| Percent of Variance Explained ($R^2$) | 42.04 | | | 59.05 | | | 37.53 | | | 56.53 | | |
| Standard Error of Estimate | 6.25 | | | 34.76 | | | 8.87 | | | 1.73 | | |

*Significant at the .05 level

The number of individuals placed by the ES is the best available indicator of ES production and effectiveness, although it does not reflect non-placement outcomes, nor does it measure long-run gains in employment and earnings as a result of ES services.

ES man-years worked in local placement and placement support processes is recommended as the denominator because it is the best available measure of resources applied.

Additional research is required to develop more complete measures of ES labor and capital utilization for use in ES productivity analysis. As current projects sponsored by DOL produce more complete productivity indexes, these should be substituted for the limited measure.

(2) Service to the Labor Market: Individuals placed as a percent of the number of unemployed individuals (IP/U)

This is a measure of performance against potential and is a composite of two more traditional measures. One traditional measure is the placement rate (IP/AR), i.e., the number of individuals placed as a percent of applicants available. The denominator, the number of ES applicants reported through ESARS, is a controllable number at the local office level, and therefore is subject to manipulation.

The other traditional measure, penetration of the labor market, has often been defined as the number of ES applicants as a percent of the labor force (AR/LF). However, the need for ES services should be measured by the number of job seekers in the labor force, not the total labor force. The best available indicator of the number of job seekers is the number of individuals unemployed, although it is not presumed that the ES should serve all unemployed individuals, implying the ratio AR/U.

The composite measure is in fact the arithmetic product of the two:

$$\frac{IP}{AR} \times \frac{AR}{U} = IP/U.$$

It has a verifiable numerator and an independent denominator. Except for monthly averages, however, the number of different individuals unemployed is estimated only through a national work experience

survey. RAL 802 (p. 27) suggests the following algorithm for estimating the number of different individuals unemployed in the labor area:

> In estimating the numbers of different individuals who will be unemployed during a year (in the near-poverty or other categories), the following factors should be applied to estimates of average unemployment for the year.
>
> Average Unemployment
>
> | Rate (Percent) | Factor |
> |---|---|
> | Under 4.0 | 4.0 to 1 |
> | 4.0 to 4.9 | 3.7 to 1 |
> | 5.0 to 5.9 | 3.4 to 1 |
> | 6.0 to 6.9 | 3.2 to 1 |
> | 7.0 and over | 3.0 to 1 |

No known method exists for estimating the number of unemployed persons by demographic characteristics nor the number of subemployed persons at the labor area level on an annual basis, as would be required for use in output standards.

(3) Service to the Job Market: Job openings filled as a percent of nonagricultural wage and salary employment (OF/Emp)

This measure is also a composite (arithmetic product) of two more traditional measures, job openings received as a percent of employment (OR/Emp), and openings filled as a percent of openings received (OF/OR). The composite measure is recommended, because the reported number of openings received is subject to manipulation.

It would be desirable to have a denominator that reflects the potential need for ES services rather than merely total employment. A desirable measure would be the number of new hires in the area, but that data is currently collected only for manufacturing, which comprises only about 25 percent of employment and of ES openings filled.

Further research should be done to determine if a proxy could be developed for new hires data for all industries. If one could assume a constant relationship between growth in employment and new hires across all industries or between manufacturing and non-manufacturing, then total new hires could be estimated as a function of the growth rate of employment, pending direct collection of the data. Unfortunately, it does not appear likely that the

assumption would be valid.

3. Environmental Factors Affecting Performance

a. Stable External Factors

(1) Industry Composition

It is often hypothesized that the higher the percentage of employment in construction, manufacturing and government, the lower ES performance would be because each of these industries has distinct hiring channels. In the analyses conducted to date, the hypothesis tends to be confirmed for construction and manufacturing, but not for government. The results differ with different performance measures, perhaps indicating interactions with labor force composition and growth.

More important, the hypotheses in Figure II-2 suggest that industry composition affects ES performance primarily through differential rates of the rates of labor turnover, which may have a pattern that is much different from the percentage distribution of employment. Growth rates of employment by industry should be tested since they are the only proxies available from published sources.

Measures of concentration, dispersion, and the number of alternate hiring channels have not been developed.

(2) Labor Force Composition

Analysis results show the percentage of labor force in low wage, low skill occupations to be positively related to ES performance at the state level. The relationships with other occupational groups have not been tested, nor has educational attainment of the population. Percent in minority groups was not related.

The hypotheses in Figure II-2 suggest that labor force composition operates on ES performance primarily through its effect on applicant composition, an hypothesis that should be tested by correlation (simple or multiple). The direct effect is through the mix of applicant capabilities in relation to job requirements for which there is no simple test.

(3) Size of Area

The hypothesis is that ES performance will be lower in larger areas due to the existence of competing institutions and agencies. One specification of

size - employment in the area as a percent of national employment - is negatively related to ES performance. Variables representing discrete size classes were significantly related to ES performance at the labor area level, but the specification used needs further testing. One might expect a curvilinear relationship, suggesting that the logarithm of size would be a more appropriate specification. This variable might also reflect indirectly the effects of concentration or dispersion of employment.

The number of unemployed as a percent of the national number tends to be positively related to performance, perhaps because where more people are unemployed the average level of skill, experience and allocation of the unemployed individual is higher. Since this is a measure of ES potential or the need for ES services, the result suggests that the ES does a better job where there is more need for its services.

b. Volatile External Factors

The following factors may change dramatically over a short period of time, indicating the need for representation in a dynamic model:

(1) Unemployment

It is often assumed that ES performance will be lower where the unemployment rate is high. Several tests at the state level using the published unemployment rate, the rate of growth of the unemployment rate, and high vs. low unemployment rates, resulted in the conclusion that the unemployment rate per se does not have consistently significant relationships to performance.

Tests at the labor area level show a negative relationship to the applicant placement rate and to the openings filled rate, but no relationship to the other measures. The hypothesis in Figure II-2 states that the fill rate should increase, but that assumes constant resources. In fact, during a period of rising unemployment, resources may be diverted (explicitly or implicitly) to UI functions.

Measures of the severity of persistence of unemployment published in "Area Trends" have not been tested, and additional research is needed to examine the interaction with other variables, especially policy factors such as UI work test and registration requirements.

Because the results were not as expected, some further comment is in order. First, while it is true that the unemployment rate is related to the number unemployed and to the size of the labor force and to the number employed, this does not mean that any findings correlating the measures of size with ES performance ipso facto confirm any hypotheses about the unemployment rate itself, which after all is only one (sometimes inappropriate) indicator of labor market conditions. In statistical analysis, one must often use a related or transformed specification even though it differs from the more common statistics. Second, hypotheses about the unemployment rate relate to the effects of its change over time, and not to the differential effects of higher or lower rates on a cross-sectional basis, which is the form tested.

(2) Growth

The hypothesis is that ES performance will be higher where there is a higher rate of growth in employment. This has been confirmed in the statistical analysis at the state level, but not at the labor area level.

Further research is needed on the components of growth by industry and interactions with other variables. The hypotheses in Figure II-2 suggest that growth reduces the relative supply of qualified workers but increases the demand for them. The separate effects should be tested.

c. Internal Environmental Factors

Internal environmental factors are those factors that are more or less under the control of the employment security system at the federal or state level, but not at the local level.

(1) Policy and Law Factors

It is hypothesized that policies and laws such as those that require the ES to perform enforcement activities, provide work tests, and list openings from federal contractors will result in lower ES performance because ES resources will be expended in registering applicants or listing jobs and attempting to serve applicants and employers who may prefer not to use the ES. Resources so expended are diverted from service to those applicants and employers who want ES services.

If state policy or law requires all claimants to register with the ES, then the ES will be consuming resources in efforts to register and to place claimants who are not active job seekers at the time they file claims, although the motivation to seek new employment would be expected to increase with the duration of unemployment and particularly with the exhaustion of benefits.

In statistical tests, claimant new applicants and renewals as a percent of all new applicants and renewals was tested statistically and was found to explain 44 percent of the differences among the states in productivity in FY74 (a period when unemployment first fell, then rose). It was in fact the single most important factor in accounting for differences in productivity among the states when external economic conditions were held constant (statistically). Similar measures of the effects of welfare and food stamp registrations were not statistically significant, but their effects need further examination.

These factors are in part external to the local ES, but are amenable to influence and change at the state or federal levels. Considerable additional research is underway to devise appropriate measures of policy and law factors, to estimate their effects on performance, and to develop suitable policies with respect to incorporating the factors into a model for setting output standards.

(2) Resources

The statistical model tested to date did not include any measures of ES resources as variables to explain differences in output performance among areas, but it is intuitively obvious that the level of resources has a bearing on ES performance as measured by the recommended indicators. The following hypotheses, suggested for testing in future analyses, each attempt to relate the measure of resources to the measure of performance in a way that corresponds to the hypotheses in Table II-1. Because in each case the hypothesis is that there are decreasing returns to scale, the resource measures are specified in a quadratic form, holding all other factors constant.

(a) Individuals placed per man-year worked decreases at an increasing rate as the number of man-years increases. The explanatory man-year variables would be specified as total man-years and as the logarithm of total man-years.

(b) Individuals placed as a percent of the number unemployed increases at a decreasing rate as the number of man-years per 1000 unemployed increases. The explanatory variables would be ES man-years per 1000 unemployed and the logarithm thereof.

(c) Openings filled as a percent of employment increases at a decreasing rate as the number of man-years per 1000 (or 10,000) employment increases. The explanatory variables would be ES man-years per 1000 (or 10,000) employment and the logarithm thereof.

The implication of the logarithmic term is that output achieved via a small increment of resources is less than the average output of all resources.

## B. Methods for Establishing Output Standards

The basic framework within which output or placement standards will be developed is a model for computing estimates of expected ES performance, using statistics that take into account the influence of external factors on ES performance across labor areas. The end products would be a published list of the standards for each of the 150 major labor areas and for balance-of-state areas; the methodology for calculating the standards; a computerized method for updating the standards; and computerized tools for using the model for each of its purposes.

The establishment of output standards for ES performance poses a number of methodological problems. With respect to each, there are both technical issues, relating to the best state-of-the-art techniques for estimating the standards, and political issues, relating to the degree of difficulty in interpreting the methods used so that the non-technician can intuitively understand and trust the results to be fair and equitable.

This section presents the following topics:

1. Alternate methods for establishing standards for quantitative performance indicators in a static model
2. The need for a dynamic model
3. A method for setting standards for qualitative indicators
4. The problem of standards for sub-parts of labor areas

Previous research and the needs for additional research are discussed under each topic.

1. Alternate methods for establishing static output standards

Two alternate methods for establishing output standards have been considered and partially tested. One method uses multiple regression analysis to estimate an equation for adjusting average performance, which can be used to set an output standard for each performance indicator for each unit of observation (labor area) without explicit grouping of labor areas into types or classes. The other method uses factor analysis to identify significant external factors, and a hierarchical clustering technique to group labor areas into discrete classes based on the external factors. Each approach has both advantages and disadvantages for the proposed application, and they will be discussed in turn.

a. Adjusted performance equation

Development of an equation to adjust performance averages for external factors that affect performance requires the specification of hypotheses relating each of the external factors to each performance indicator, creation of a data base containing both the performance indicators and the external factors (appropriately specified), and use of multiple regression analysis to estimate the coefficients of the prediction equation for each of the performance indicators.

The multiple regression analysis results in an estimating equation, which indicates how much the performance measure is expected to increase (or decrease) as a result of a one-point increase in the external factor. The equation can be used, then, to compute an expected value for the performance measure for each specific labor area and for each balance of state area in the equation.

The expected value for each area is, by definition of the statistical process, based implicitly on the national average for that performance measure, adjusted for differences between the external factors in the area and the national average for each factor. Each expected value also has a standard error of estimate which defines the level of precision of the estimate and which can be employed when the expected values are used to set output standards or measure performance against the standards. The standard error of estimate

represents the area of ignorance about factors affecting performance. Hopefully, the principal component is the variation in ES management among the areas, although measurement error, specification error and excluded factors also contribute.

The research completed to date has tested only one method for setting output standards - a linear equation for calculating expected performance, wherein the coefficients of the estimating equation were estimated using regression analysis. The equation was of the standard form:

$$\hat{Y}_i = a + \sum_{i=1}^{n} b_{ij} X_{ij} + e_i$$

The table on the following page shows two examples of how expected performance can be calculated using thir type of equation. The equation coefficient multiplied by the actual value of the factor for an area yields the factor's contribution to expected performance for the area. The algebraic sum of contributions plus the constant is the expected performance.

The particular estimating equation was subject to the limitations that a linear relationship was assumed between each of the explanatory variables and the dependent variable, no interaction terms were included, the explanatory variables did not include any data on labor force composition, and only 80 of the 150 largest SMSA's were included in the estimate.

If output standards are to be set using a performance adjustment equation, several additional research steps are required.

(1) The assumption of a linear relationship between the ES performance measures and the external factors needs to be examined to ascertain whether other specifications of some of the external factors (e.g., a logarithmic transformation of the size measure) might not be more appropriate.

(2) Interactions among the external factors need to be examined and perhaps included explicitly in the equation. For example, industry composition variables, particularly the percentage of employment in manufacturing, may have more of an effect on ES performance in combination with growth rate than as a separate variable.

Table III-6
Example of How Expected Performance is Computed for One Measure:
Individuals Placed as a Percent of the Number Unemployed (IP/U)

| Equation Coefficients (1) | | SMSA1 Actual Value of Factor (2) | SMSA1 Contribution to Expected Performance (3) = (1) X (2) | SMSA2 Actual Value of Factor (4) | SMSA2 Contribution to Expected Performance (5) = (1) X (4) |
|---|---|---|---|---|---|
| 1. Constant | 261.415 | -- | 261.415 | -- | 261.415 |
| 2 Growth | 1.106 | .0727 | .080 | -1.5511 | -1.715 |
| 3. % Emp. | -53.678 | .3489 | -18.728 | .4102 | -22.019 |
| 4. % Unemp. | 26.494 | .1085 | 2.875 | .2635 | 6.981 |
| 5 Unemp. Rate | -19.074 | 2.0664 | -39.414 | 3.7725 | -71.955 |
| 6 Construction | -5.687 | 6.7926 | -38.626 | 4.9120 | -27.932 |
| 7. Manufacturing | -1.485 | 19.6876 | -29.234 | 19.6478 | -29.175 |
| 8 Government | .172 | 20.6684 | 3.554 | 19.0918 | 3.283 |
| 9 Claimants | -.661 | 21.8591 | -14.438 | 15.2522 | -10.076 |
| 10. Size Class 1 | 87.893 | .0 | .0 | .0 | .0 |
| 11. Size Class 2 | 8.253 | .0 | .0 | .0 | .0 |
| 12 Size Class 3 | 0.0 | 1.0 | .0 | 1.0 | .0 |
| 13. Size Class 4 | 35.838 | .0 | .0 | .0 | .0 |
| Expected Performance: | | | 127.483 | | 108.809 |
| Actual Performance: | | 163.044 | | 64.791 | |
| Difference: | | -35.36 | | 44.018 | |

Standard Error of Estimate: 34.7577
Percent of Variance Explained: 59.05%

Notes: Column (1) Lists the actual coefficients of the adjusted equation estimated using regression analysis. For purposes of illustration, all explanatory variables were included in this example, even though some were not statistically significant. The constant term is by product of the statistical process and has no independent significance in this application.

Columns (2) and (4) List the actual values of the explanatory factors for the two SMSA's in the example.

Columns (3) and (5) List the contribution of each factor to expected performance. The values are computed by multiplying the actual values of the external factors for each area times the equation coefficients in Column (1).

Expected Performance is calculated by (algebraically) summing the contributions of each factor in Columns (3) and (5) respectively.

Actual Performance is the IP/U measured for each area.

The Difference is Actual minus Expected IP/U.

(3) The model is incomplete without any reflection of labor force composition. Occupational group (low wage, low skill) was found significant in research at the state level, while percent of labor force in minority groups was not; neither variable was tested at the labor area level. Even though data on labor force composition is available only from the 1970 Census, it is possible that changes in composition over time are slow enough that use of 1970 data would improve the overall model.

(4) Only one variable reflecting policy and law has been tested at the labor area level - the percent of new applicants and renewals who were UI claimants. This factor was found to have a significant negative effect on ES performance at both the state level and the labor area level, even when unemployment levels and rates were included in the same analysis. Analogous variables for Food Stamp and welfare recipients were tested at the state level and found to have no significant effect on productivity, but should be tested at the labor area level. It is necessary also to examine the effects of mandatory job listings on job market penetration and percent of openings filled.

(5) Research to date has focussed on annual average performance as affected by annual averages of the external factors. In reality, the effects of intertemporal changes in such factors as unemployment rates and growth rates may impact on the ES over shorter time periods and/or with lags, so that the effects are concealed by the use of annual averages. These dynamic, time-dependent effects need further examination.

The advantages of the performance adjustment equation are:

(1) A specific standard is computed for each defined labor area for each performance indicator, using the actual values of the external factors in that area to adjust.

(2) A standard error of forecast can be computed for each area, using the standard error of estimate and the standard error of the coefficient.

(3) No explicit grouping or classification of areas is required, minimizing the scope of negotiation

on the part of ES administrators to have areas within their states transferred to categories having lower standards.

(4) The resultant standards are based on the adjusted average performance of (implicitly) similar areas, and reflect what should be an achievable average performance.

The disadvantages are:

(1) While the estimating equation itself is a relatively simple arithmetic expression, the process by which the coefficients of the equation and the standard errors are computed is complex. It may be difficult to explain the process with sufficient clarity to administrators to permit them to have confidence in the results.

(2) Each performance indicator requires a separate estimating equation. If the current BPF indicators are used, 30 such equations would need to be estimated, and 30 specific standards would be calculated for each labor area. Although computers could do these calculations quickly, actually using all the measures could be an expensive proposition. The process could be simplified through use of a composite measure combining all performance indicators, but this would sacrifice much of the detail needed for operational evaluation and diagnosis at the local level.

(3) It is likely that a given external factor will be related to the different performance indicators in different ways. For example, the growth rate may be related to productivity and to jobs filled, but not to applicants served. Again, this may be difficult to explain clearly to administrators.

(4) The adjustment equation is written in a form which tends to imply causality between external factors and ES performance. In fact, of course, the causality linkages are complex function-relating ES internal processes to measured outputs and constrained by external factors. The equation would reflect only the gross effects of the constraints, with the internal process effectiveness implicitly reflected in the standard error or estimate.

b. Grouping of labor areas

The second method for setting output standards is based upon a classification scheme or typology that can be used to group labor areas into a limited number of homogeneous groupings. Within each such group or type, the output standards would be based upon the average performance of all areas for each of the performance indicators. The project plan called for performing the statistical analysis needed to provide an initial indication of the kinds of groupings and standards that could be developed, but technical problems and resources limitations prevented the planned tests. Therefore, the following material discusses the principles involved and provides hypothetical examples.

The key step in grouping is that of classifying labor areas into homogeneous groups. Once again, the hypothesis is that external economic conditions impose constraints on ES performance, so the objective is to define groups of areas which are homogeneous with respect to the relevant external factors. If there were only two relevant factors, each of which had discrete values of "high" and "low", then 4 classes would be sufficient:

| | |
|---|---|
| Class 1: | high-high |
| Class 2: | high-low |
| Class 3: | low-high |
| Class 4: | low-low |

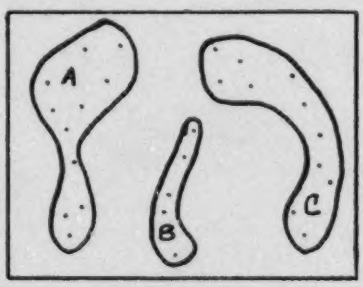
However, the research completed to date has identified several significant factors, most of which are continuous variables. Tests of discrete specifications of the unemployment rate did not yield statistically significant results, although discrete size class variables were significant in one test at the labor area level. Further examination is required.

It appears, then, that the best method for developing the groupings is to use a combination of factor analysis and hierarchical clustering. The factor analysis takes as many descriptive variables as one wishes to test and selects those that have the greatest independent value for discriminating among the labor areas. (It identifies a minimum number of orthoganal vectors in multi-dimensional space, then selects the observable factors most nearly correlated with each such vector.)

The hierarchical clustering technique takes the factors thus identified and creates groupings of areas so that the areas within a group are most similar when all factors are taken together and are most different from areas in other groups. The technique is hierarchical because it starts with each area as a single group, then proceeds stepwise to combine areas into fewer groups until all areas have been combined to one group. The number of groups used is essentially arbitrary with respect to the clustering technique and is chosen based on the practicality of the application at hand. For purposes of developing output standards, it seems reasonable to select the step in the process when all areas have been combined into 10 or 12 groups. Within each such group, standards would be set by calculating the average of each performance indicator within each group. The table on the following page shows how such standards might be presented for three arbitrary types of labor areas.

Grouping areas using a combination of several factors can result in difficulties in interpreting the results to administrators. The map below shows how three different types of labor areas might compare on any two factors. Some of the areas in Group A are more similar in size to areas in Group C than to other Group A areas while Group B areas are similar in industry composition to some Group C areas. If Group A or B have a higher output performance standard than Group C, there would be the appearance of an inequity.

SIZE




Industry

The advantages of using groupings of labor areas to set standards are:

(1) Each area is classified into a specific group. The list of areas in each group can be published so that administrators will know with whom they are being compared.

Table III-5. Example of Output Standards Based on Averages Within Type of Area for Four Performance Measures

| Performance Measure | Type A | Type B | Type C |
|---|---|---|---|
| IP/U | 113.92 | 38.03 | 28.36 |
| OF/E | 2.32 | 1.68 | 1.47 |
| IP/AR | 27.20 | 14.74 | 13.18 |
| OF/OR | 57.43 | 54.85 | 53.89 |

(Target Groups)

(Types of Jobs)

etc.

(2) The output standard is based on an explicit average of all areas within a given group for each performance indicator. The standard deviation for each indicator within each group can also be computed and applied in different uses of output standards.

The disadvantages of using this approach are:

(1) Because the groupings are established using many factors, it is difficult to explain precisely why a given area is in one group rather than another.

(2) A given area may be more similar on one or two factors to certain areas in different groupings with lower standards than it is to other areas within the same grouping on the selected factors. This leaves an apparent potential for inequities and room for negotiation and dispute.

(3) Even when all factors are taken together, certain areas will be on the margin of the group in which they are classified, which means that they will also be near the margin of the next higher (or lower) group.

(4) It would be desirable for the groupings to remain relatively constant over time, but certain potentially relevant variables such as the unemployment rate are volatile. Therefore, either the labor areas must be regrouped each year to reflect volatile factors, or a separate adjustment to the output standard must be made for the volatile factors.

c. Recommendation

No firm conclusions or recommendations can be made on the choice of a method until the two methods have been subjected to further testing on their technical and political merits.

2. Toward a dynamic model

The preceding methodology will result in a static model which calculates expected ES performance based on total performance for the year (or other time period) and the average of external factors for the same period. Such a model is quite useful for a variety of purposes, but it cannot fully reflect the real world, in which events

occur in a time continuum and in which current ES performance is a function not only of current conditions but also of recent history. In the real world, use of annual data may obscure time-dependent relationships between ES performance and external factors if the impact of a change in external factors such as rapidly rising unemployment passes within one or two quarters. The effects can plainly be seen by an observer in any ES office, but may wash out in annual averages.

The purpose of a dynamic model, then, is to provide a framework reflecting the instantaneous and time-lagged effects of cyclical variations in external factors on ES performance, and in particular on individuals placed per man-year. To develop the model, it is necessary to explore these intertemporal cyclical relationships, adjusted for seasonal factors and for variations caused by the structure of the ESARS reporting system.

Quarterly ES performance data are affected both by true seasonal factors and by artifacts of the reporting systems. ESARS is a cumulative reporting system, which counts each individual placed (IP) only once during the fiscal year, no matter how many times the individual is placed. The annual ratio of transactions (P) to individuals is about 1.5. It appears that approximately 75 percent of the individuals placed more than once during a fiscal year, usually in casual, day worker, or other short-term jobs, are placed in the first quarter of the year. Thus, even though the level of placement transactions may remain constant throughout the year and the cumulative total of individuals placed year-to-date will rise, estimates of the net number of new individuals placed will always show a quarter-to-quarter decline.

Unfortunately, there does not appear to be a simple method for estimating the quarterly effects of the reporting system in isolation from seasonal or cyclical variations.

A dynamic model would represent a very significant step forward in refining the ES management system. Some of the dynamic effects of cyclical change on ES performance might ultimately be reflected in the annual funding allocation process, insofar as the data on external factors found relevant are available shortly after the conclusion of each quarter. These effects could also be reflected in specific resource requirement and performance projections which are a part of the annual budgeting process. Given the current needs for further development of the static model, however, it is recommended that any development of a dynamic model be deferred.

3. Developing standards for qualitative performance indicators

At the beginning of this chapter, it was recommended that output standards be developed for three key quantitative ES performance indicators. One of these is a measure used in the BPF, while each of the other two is a composite of two BPF measures. In addition, it is desirable for many reasons to have also output standards for quality performance indicators relating to types of ES applicants placed and types of jobs filled. While the analysis presented in Volume 2 of the report shows a high degree of interrelationship among the 30 BPF measures and raises technical questions about the need for all of them, the fact remains that virtually all the qualitative measures in Table III-1 are grounded in specific laws or court decisions (as in the case of target group placement rates) and/or reflect a desire to build incentives to improve the overall level and quality of ES performance.

The major substantive problem is that all of the qualitative measures in the BPF relating to placement of target groups, counseling and types of jobs filled have denominators that are subject to manipulation by the ES at the local level. (Irrespective of the method used to set output standards, it would be technically possible to compute a standard for each of the qualitative measures, although it might be costly.) For example, a standard for a target group placement rate, once set, could easily be achieved simply by reporting as registered only those applicants who were actually placed. It seems wasteful to encourage this type of manipulation, especially when it might result in a lowering of overall performance due to the absence of application cards for job seekers and other documents needed at the operating level.

One possible alternative is to derive standards for the qualitative indicators from national averages of indicators that are components of the quantitative measures. The example of target group placement rates can illustrate the method (Table III-6):

a. Calculate the national average placement rate (individuals placed as a percent of new applicants and renewals) for all applicants and for each target group. In FY 74, for example, the national average placement rate for all applicants was 26.6, for veterans it was 27.3, and for claimants it was 14.8 (Column 1).

b. Calculate the ratio of each target group placement rate to the placement rate for all applicants. The FY 74 ratio was 102.6 for veterans and 55.64 for claimants (Column 2).

c. In each labor area, establish target group placement rate standards by applying each national ratio (of target group placement rate to total placement rate) to the placement rate for all applicants in the labor area. Using data from Table III-1, Table III-6 shows placement rate standards for two hypothetical areas having placement rates for all applicants of 20 percent and 50 percent respectively (Columns 3 and 4).

In the following example, it is assumed that Area B has under-reported new applicants and renewals to increase its total placement rate to 50 percent, an unusually high number. The proposed method yields target group standards which are also unusually high, so that unless the Area B has a balanced performance it will not be rewarded.

The method encourages balanced placement performance without rewarding the manipulation of the number of new applications and renewals reported, either for all applicants or for the target groups. Any potential reward for manipulation is offset by the fact that many applicants fall into two or more of the target groups, so that under-reporting new applicants or renewals in any of the larger target groups (veterans, minority, claimants or women) will have effect on the total number of new applicants and renewals. In addition, the actual standards would be based on historical performance, not projected performance, so that precise standards would be available as a performance evaluation tool, but not as a target.

A similar method could be applied to the development of standards for types of jobs and other qualitative factors in the BPF.

4. Setting Output Standards for Labor Areas that Cross State Lines

In general, it is desirable to establish and apply output standards for ES services to an entire labor area, because by definition each such area is an integrated economic and social system. Use of the standards should encourage ES management to locate its offices and utilize its resources to be of maximum service to the labor area, and should reward superior output performance independent of input location and utilization considerations.

However, of the 150 major labor areas for which unemployment rates are published in the annual Manpower Report of the President, 23 are SMSA's having parts in more than one state. This poses a particular problem when using output standards for allocating resources to states. In many of these areas, the central city is wholly within one state,

Table III-6. Derivation of Target Group Placement Standards for Two Hypothetical Areas

| Target Group | National Data for FY74 | | Placement Standards | |
|---|---|---|---|---|
| | Placement Rate (1) | Ratio to All Applicants (2) | Area A (3) | Area B (4) |
| All Applicants | 26.6 | -- | 20.0* | 50.0* |
| Veterans | 27.3 | 102.6 | 20.53 | 51.32 |
| Minority | 32.7 | 122.9 | 24.59 | 61.47 |
| Poor | 37.3 | 140.2 | 28.05 | 70.11 |
| Claimants | 14.8 | 55.64 | 11.13 | 27.82 |
| Migrants | 45.8 | 172.2 | 34.44 | 86.09 |
| Women | 25.4 | 95.49 | 19.10 | 47.74 |
| Handicapped | 28.0 | 105.3 | 21.05 | 52.63 |
| Older Workers | 17.7 | 66.54 | 13.31 | 33.27 |
| Youth | 33.7 | 126.7 | 25.34 | 63.35 |

*Assumed actual placement rate for each area. This is multiplied by the ratio in Col. (2) to calculate the target group standards. As an example: Area A Placement Standard for Veterans = (20.0)X(102.6)=20.53

with suburban and rural portions extending into another state. To take the archetypical case of Washington, D.C., while the area is an integrated labor area, Maryland and Virginia contain all the suburban and rural portion of the SMSA's, while D.C. has only the central city. It seems unreasonable to apply the same output standards to the entire SMSA, particularly for purposes of funding allocations, even though the entire metropolitan area is covered by a single Job Bank operation.

Therefore, it is necessary to develop a further disaggregation for output standards, reflecting the sub-divisions of SMSA's. Performance data is regularly compiled for each state's portion of each SMSA, and, furthermore, for each cost center in each SMSA. Each cost center can be identified as located in the central city, the urban fringe, or the rural portion of the SMSA by examining its location on a map. Using these indicators, specific adjustment factors can be estimated to reflect the effects on performance of location of cost centers within an SMSA using either of the alternative methods for setting standards. In the adjustment equation approach, dummy variables would be included to obtain differential coefficients; in the grouping approach, the difference between the average for all areas within the group and the average for cost centers within each SMSA part would be calculated.

These adjustment factors would indicate the performance differentials between each SMSA part and the overall average. They would be used in the funding allocation process to set a standard for the SMSA parts in each state portion of a multi-state SMSA. For other purposes, they might be used as indicators of optimum office location.

It is important to note that, while data on external factors can be estimated for the parts of the SMSA in each state, this should not be done because the external factors influence the integrated whole.

## C. Using Output Standards

The uses of output standards have been discussed in generalities previously in this report. This attempts to state in some detail how to compute the various statistics needed for each type of application, assuming the methods for setting have already been established and that there is a need to use them for each purpose.

1. Using output standards as a management tool.

   It is assumed that ES management at all levels has strong incentives to improve overall ES performance, as measured by available data on placement outputs. Performance improvement plans must ultimately have their effect at the labor area or local level, where ES services are actually provided and where outputs are achieved. The output standards permit the identification of individual areas where actual performance is below expected or standard performance. While it is likely that performance could be improved in any labor area, it seems logical to focus on those areas that are furthest below a standard level of performance.

   The comparison of actual with standard performance can tell state ES management which areas within the state have the lowest performance. If most areas within the state have performance below the standard, then the process of diagnosing the causes of poor performance should start at the state level, with a review of management techniques, training approaches, staffing methods, etc. At the labor area level, the location of offices, assignments of staff, and overall manner in which staff resources are organized, trained, and managed should be examined to isolate specific areas that need improvement.

   Table III-2 on the following page displays expected and actual performance for four performance indicators for six SMSA's. These have arbitrarily been grouped by high, medium and low expected or standard performance level. Table entries for each area show expected levels of performance for each measure, actual performance, and the ratio of actual to expected performance. If all areas were in the same state, the state administrator might set the following priorities for further analysis and performance evaluation:

   a. SMSA2 would receive the highest priority, because that area's performance is lower than the standard for all four measures, while SMSA4 is low on three of the four measures.

   b. SMSA3 might be given the next priority, because its performance is low on both placement measures.

TABLE III-2

Comparison of Actual Performance with Estimated Expected Performance for Four Performance Measures in Six SMSA's

| | Individuals Placed as a Percent of the Number Unemployed | Openings Filled as a Percent of Nonagricultural Employment | Individuals Placed as a Percent of New Applicants and Renewals | Openings Filled as a Percent of Openings Received |
|---|---|---|---|---|
| **High Standard** | | | | |
| SMSA1 | | | | |
| Expected | 127.48 | 3.85 | 24.97 | 66.94 |
| Actual | 163.04 | 2.55 | 34.34 | 61.39 |
| Actual/Expected % | 127.89 | 66.36 | 137.54 | 91.71 |
| SMSA2 | | | | |
| Expected | 108.81 | 3.43 | 26.02 | 68.27 |
| Actual | 64.79 | 2.09 | 20.07 | 53.48 |
| Actual-Expected % | 49.55 | 60.96 | 77.11 | 78.34 |
| **Medium Standard** | | | | |
| SMSA3 | | | | |
| Expected | 55.91 | .97 | 18.01 | 59.45 |
| Actual | 61.88 | 2.43 | 24.15 | 55.16 |
| Actual/Expected % | 110.68 | 250.52 | 134.09 | 92.78 |
| SMSA4 | | | | |
| Expected | 63.84 | 3.37 | 23.87 | 65.69 |
| Actual | 57.02 | 2.28 | 18.41 | 70.75 |
| Actual/Expected % | 89.33 | 67.62 | 77.10 | 107.70 |
| **Low Standard** | | | | |
| SMSA5 | | | | |
| Expected | 12.85 | 2.06 | 11.86 | 56.94 |
| Actual | 35.92 | 1.57 | 13.62 | 48.74 |
| Actual/Expected % | 279.58 | 76.50 | 114.85 | 85.59 |
| SMSA6 | | | | |
| Expected | 11.41 | .22 | 12.62 | 57.08 |
| Actual | 20.81 | 1.36 | 12.74 | 59.05 |
| Actual/Expected % | 182.41 | 621.03 | 100.98 | 103.46 |

c. SMSA's 1 and 5 are low on both measures of openings filled, which taken together with the performance of SMSA's 2 and 4 may indicate a general weakness in service to employers in this hypothetical state.

Furthermore, within the labor area, analysts diagnosing the causes of poor performance must review the manner in which such policies as performing the work test have been implemented, particularly with respect to those items known to have a negative effect on performance. One state found that, even though state policy does not require registration of all claimants, there were sizeable variations within the state as to the percentage of new applicants and renewals who were claimants that did not appear to be related to differences among the areas in unemployment rates or levels. (The differences were perfectly rank-correlated with differences in performance.)

The key point for administrators to remember is that the output standard set for a given area takes into account the observed external factors - economic and social, policy and law. The observed measures of policy and law factors in a given area may, in and of themselves, indicate that failure to conform to the intent of a policy or law is having a major negative effect on performance, and correction of the deviation will improve performance. It is true that correcting the problem might raise the output standard used for resource allocation (depending upon national policy). However, it is also true that it is the responsibility of each state to effectively serve the greatest numbers of job seekers with the resources it has available. Explicit inclusion of policy and law factors in the performance evaluation and analysis process provides explicit guidance for the analysis of policy implementation.

2. Using output standards in annual resource allocations.

In lieu of using national averages as the standards against which performance is measured for annual resource allocations, output standards would be set for each area, including both the 150 major labor areas and balance-of-state areas.

It is recommended that all known factors external to the local ES be taken into account in the process of setting output standards, including policy and law factors, so that differences between the output standard and actual performance can reflect as nearly as possible the effects of factors internal to the ES (i.e., under ES control), such as location of offices, overall quality of management and staff, local office organization, etc. These internal factors can then be addressed by ES management to develop performance improvement plans. A number of problems arise, however, in interpreting and using the output standards for different purposes when policy and law effects are taken into account.

To illustrate the problem of taking policy and law factors into account in setting output standards, consider the effects of policy with respect to the registration of UI claimants. In a period of rising unemployment, job losers constitute the largest component of the growth in unemployment. Most job losers are covered by UI, and most become claimants. "In this context, it should be noted that the number of workers receiving unemployment compensation as of November 1974 was practically the same as the number of job losers..." (Manpower Report of the President, April 1975, p. 29.) Many job losers, however, are on temporary layoff or believe themselves to be; they expect to be recalled to their previous jobs, and they are not seriously interested in finding a new permanent job. (Unpublished data from New Jersey indicate that during 1974 only 44 percent of initial claimants were looking for a permanent new job.)

Since UI registration policies (and, to some extent, laws) are subject to influence by state ES and UI agencies, it does not seem desirable to lower output standards by the total amount indicated by the adjustment equation, which in the form shown in Table III-6 reduces the standard for IP/U by .661 points for each 1-point increase in claimants as a percent of new applicants and renewals. This is particularly pertinent for areas where mandatory registration results in claimants being 60 percent or more of new applicants and renewals, which would reduce that standard by 39 percentage points. In the absence of a more sophisticated procedure, one might set a policy that the claimant percentage above some fixed standard would be ignored in setting output standards. Based on the average of all states (about 27 percent) and review of some specific states, a reasonable cut-off might be 30 percent, but further analysis is needed before policy could be set.

Since ES resources are allocated to states, not individual areas, the performance of the individual areas in relation to their individual standards must be combined to arrive at a single state summary score, similar to the summary score computed in the FY76 BPF. In addition to being conceptually desirable, the arithmetic of the recommended procedure requires this and precludes the direct comparison of total state performance against a state standard, as illustrated by examples on the following pages. If they so choose, a state could use the results to allocate resources among areas within the state.

a. Computing a state score for each measure of performance

This section describes the computational procedures, illustrated with an example from one state, using only two

quantitative measures. For each labor area, its performance for the year (or other budget period) would be compared with its standard for each of the performance ratios. A simple method for making the comparison is to divide actual performance by the standard to arrive at a percent of accomplishment. (A modification of this would be to compare actual with expected, plus or minus one standard error. By definition, 2/3 of the areas will have performance that is within one standard error of expected.)

Assuming three performance indicators in each area, the measures of performance compared with standard can be written algebraically as follows:

$$PM_i^1 = \frac{\text{IP/MYi actual}}{\text{IP/MYi expected}}$$

$$PM_i^2 = \frac{\text{IP/U}_i \text{ actual}}{\text{IP/U}_i \text{ expected}}$$

$$PM_i^3 = \frac{\text{OF/Emp}_i \text{ actual}}{\text{OF/Emp}_i \text{ expected}}$$

The first performance measure, $PM_i^1$ is ratio of actual number of individuals placed per man-year. The subscript (i) indicates that this is a measure for a particular area within a state. $PM_i^2$ compares actual individuals placed as a percent of the number unemployed (IP/U) with expected, and $PM_i^3$ compares actual openings filled as a percent of the number employed (OF/Emp) with expected. For each of the measures, average performance in a given labor area would result in a score of 100, while higher or lower performance would yield a higher or lower score.

Table III-7 on the following page, illustrates the calculation in a state reporting 7 SMSA's for two of these performance measures for which data were available: IP/U at the top and OF/Emp at the bottom. For each area, Col. (1) shows the actual performance, Col. (2) shows the expected and Col. (3) shows actual performance as a percent of expected. The range in Col. (3) for IP/U is from 37.5 percent to 67.3 percent and for OF/Emp it is from 45.8 percent to 191.8 percent, with only two parts of the state exceeding the standard.

To arrive at a statewide performance measure, each of the measures must be separately combined into a weighted average for the state. The weights are based upon the denominators of the performance measures, and the appropriate weight for each measure is the fraction of the state total that is in the labor area. For the productivity measure, the weight is the percent of state man-years in each area;

TABLE III-7

Example of How to Compute a Summary Performance Score for a State for Two Performance Measures

| | Performance Measure 2 - IP/U | | | Weights | | Weighted Average |
|---|---|---|---|---|---|---|
| | (1) Actual ÷ | (2) Expected = | (3) A/E % | (4) # Unemp (1000's) | (5) % of State Unempl | (6) [Sum of (3) X (5)] |
| SMSA 1 | 30.4961 | 81.2493 | 37.5340 | 12.0 | 4.86 | 1.82 |
| 2 | 26.7327 | 35.0216 | 76.3320 | 33.6 | 13.60 | 10.38 |
| 3 | 19.0474 | 33.1501 | 57.4580 | 45.6 | 18.46 | 10.61 |
| 4 | 35.9696 | 93.2057 | 38.5916 | 16.5 | 6.68 | 2.57 |
| 5 | 29.7352 | 66.1604 | 44.9441 | 15.9 | 6.44 | 2.89 |
| 6 | 32.4197 | 55.6644 | 58.2414 | 16.9 | 6.84 | 3.98 |
| 7 | 30.2968 | 55.6752 | 54.4170 | 11.9 | 4.82 | 2.62 |
| Bal. of State | 43.0449 | 61.9790 | 69.4508 | 94.6 | 38.30 | 25.60 |
| Total State | [33.1156] | [55.5468] | | 247.0 | 100.00 | 61.49 |

| | Performance Measure 3 - OF/Emp | | | Weights | | Weighted Average |
|---|---|---|---|---|---|---|
| | (1) Actual ÷ | (2) Expected = | (3) A/E % | (4) # Empl (1000's) | (5) % of State Empl | (6) [Sum of (3) X (5)] |
| SMSA 1 | 1.3100 | 2.2993 | 56.9739 | 265.2 | 6.05 | 3.45 |
| 2 | 1.3553 | 1.8280 | 74.1411 | 557.8 | 12.73 | 9.44 |
| 3 | 1.0733 | .5595 | 191.8320 | 885.3 | 20.21 | 38.77 |
| 4 | 1.5754 | 2.6981 | 58.3892 | 437.4 | 9.98 | 5.83 |
| 5 | 1.0797 | 2.3566 | 45.8160 | 342.4 | 7.82 | 3.58 |
| 6 | 2.0725 | 2.2525 | 92.0089 | 269.1 | 6.14 | 5.65 |
| 7 | 1.6603 | 2.2127 | 75.0350 | 219.0 | 5.0 | 3.75 |
| Bal. of State | 2.6993 | 1.9464 | 138.6817 | 1404.6 | 32.06 | 44.46 |
| Total State | [1.7863] | [1.8101] | | 4380.8 | 100.00 | 114.93 |

for the other two measures the weights are the percent of unemployment and of employment respectively as shown in Col. (5) of Table III-7. The algebraic formula for calculating the state level score for $PM^2$ (measures IP/U) is:

$$PM_j^2 = \sum_{i=1}^{n} PM_{ij}^2 \times \frac{U_{ij}}{U_j}$$

The subscript (j) indicates that this is for a given state. The formula shows that the state score ($PM_j^2$) is the sum across all areas of the state of the area performance scores ($PM_{ij}^2$) multiplied by the number unemployed in the area as a percent of the state's total unemployment ($U_{ij}/U_j$). The weighted performance measures for each area computed by multiplying Col. (3) by Col. (5) are shown in Col. (6), and the weighted average for the state (the sum of the areas) is shown at the bottom. For individuals placed as a percent of the number unemployed, the weighted average actual performance compared with expected is 61.49 percent; for openings filled as a percent of employment, the score is 114.93 percent.

Some have suggested that it would be equally as good to calculate the score for each measure as the ratio of state performance to the weighted average of labor area standards. To illustrate the error, weighted averages of actual performance and expected performance were calculated. The weighted average of actual performance is, by definition, equal to the actual state total performance and is printed in brackets under Cols. (1) and (2). For IP/U, the weighted average actual was 33.12 and the weighted average expected was 55.55. The ratio of 33.12 to 55.55 is 59.62 percent. This is less than the true weighted average of 61.49. Similarly, for OF/Emp, the ratio of 1.79 to 1.81 is 98.90, less than the true average of 114.93.

This result occurs because the larger areas of the state tended to have higher ratios of actual to expected performance than did the smaller areas. The only way to properly reflect this is to compute the state total for each performance measure as the weighted average at the ratio of actual to expected in each area.

b. Computing the statewide BPF summary score

The statewide summary score would be computed as an average of the scores for each of the individual performance measures. This would be a weighted average if certain items were considered more important than the others. For example, it might be reasonable to give more weight to individuals

placed than to the other measures. The formula might then read: Using only the two measures for which data are available, and assuming that one might decide to give 60% weight to individuals placed and 40% weight to openings filled, the BPF formula would read as follows:

$$BPF_j = 60\% PM_j^2 + 40\% PM_j^3$$

Using the values from the preceding table, the calculated result for the state in our example would be:

$$BPF_j = .6\ (61.49) + .4\ (114.93)$$

$$= 36.894 + 45.972$$

$$= 82.866$$

The result of this equation can be called the "BPF" score, because it is analagous to the policy-weighted score which was computed comparing state performance against the national average in the BPF for FY75 and FY76. The weights of 60% and 40% are analagous to the budget weights used in those formulas, which of course had more than two performance measures. However, in the recommended method, the state's performance is compared with its own standard: the weighted sum of the performances of each labor area. If a state had average performance, it would receive a score of 100; in our example, state performance was below standard, and the score is 82.866.

Therefore, the score can be used in future funding allocations in precisely the same manner as the BPF summary score was used in the past, to calculate the state's share of resources. For example, assume that 20 percent of the annual allocation would be adjusted for performance. Ignoring hold-harmless provisions, etc., the formula can be expressed in the following way:

$$MY_j^{t+1} = \frac{MY_j^t}{MY^t}\ (.8 + .2\ BPF_j)\ MY^{t+1}$$

This formula says that the man-year allocation for state$_j$ for next year ($MY_j^{t+1}$), is equal to its share of current national man-years ($\frac{MY_j^t}{MY^t}$), adjusted for performance ($.8 + .2\ BPF_j$), multiplied by the total national man-years available for allocation ($MY^{t+1}$). In other words, the formula adjusts each state's share of national man-years

based on performance, with the state's total dependence largely on the national total available. The result is quite similar in end result to previous BPF formulas.

If the example state had 1000 man-years in the current year ($MY_j^t$) out of a national total of 25,000 man-years ($MY^t$), then the next step would be to calculate the state's share for the next year:

$$MY_j^{t+1} = \frac{1000}{25000} \quad [\ .8 + .2\ (.82866)\ ]\ MY^{t+1}$$

$$= .04\ [\ .96573\ ]\ MY^{t+1}$$

$$= .038629\ \ MY^{t+1}$$

The initial share (1000/25000 or .04) is reduced to 96.57 percent or .0386, because performance was below standard. If the national number of man-years available for allocation ($MY^{t+1}$), remained at 25,000, the state would get only 965.7 in the next year.

3. Allocation of marginal or supplemental resources and estimating ES output

Frequently, DOL asks OMB and/or Congress for additional resources, and is asked in turn what outputs can be expected from the additional resources. The prediction model answers the question by estimating the additional output that would be expected from supplemental or marginal resources.

An allocation which gives each state and labor area some resources but which puts the largest share in the areas with the greatest expected performance can be computed by giving each labor area (via the state) a share of the supplement which is equal to its current share of resources, adjusted for performance:

$$MY_j^S = \frac{MY_j}{MY} \quad BPF_j \times MY^S$$

This equation states that the supplemental man-years for a given state could be allocated by applying the unadjusted BPF score to the state's starting point man-year then allocating the supplement according to the adjusted share. Using our example state, it started with 1000/25000 or 4 percent of national man-years. Its BPF score was 82.87, which, multiplied times the 4 percent starting share, yields a supplemental share equal to 3.31 percent. If the size of the national supplement was 1000 man-years, the example state would get 33.1 man-years.

The extent to which the underlying predictive model assists in predicting what outputs can be expected where depends upon the complexity of the model. In Section B. of this chapter, a generalized standard form equation was written that shows individuals placed per man-year (IP/MY) as a function of external and internal factors. As discussed at that point, if the actual equation used to compute expected performance is linear, then the average IP/MY is equal to the marginal. Expected output from supplemental resources can be estimated simply by multiplying either the observed IP/MY or the calculated expected IP/MY by the size of the supplement:

$$\text{Marginal IP} = \frac{\text{IP}}{\text{MY}} \text{ expected} \times \text{MY}^{S}, \text{ or } \frac{\text{IP}}{\text{MY}} \text{ actual} \times \text{MY}^{S}$$

If, however, the equation contains nonlinear or interaction terms, then the equation for the marginal product must be derived and used to estimate expected output. The derivation process, while simple to econometricians, is too complex to explain in this report.

4. Using output standards at the local office level

a. Within the 150 major labor areas

The output standards to be developed by the methods described in Section C., are standards for an entire labor area, and are developed taking into account the external social, economic, policy and law factors that constitute the relevant environment within which the ES renders its services. With the exception of possible adjustments for the location of offices in different parts of SMSA's that cross state lines, the recommended methods would not result in explicit standards for individual local offices (except where a single local office serves the entire area). The rationale for setting standards that apply to entire labor areas, rather than individual local offices, was stated under D.2 above.

There are two questions that might be addressed in relation to standards for individual local offices within a multi-office SMSA. First, is it necessary to develop local office output standards? Second, is it feasible to do so?

The necessity for developing local office output standards is related to the degree of autonomy of management exercised by the local office manager. The local office traditionally has been the level at which staff and other resources are managed and utilized to provide services, and the local office manager has been a very crucial person in the ES management structure.

However, in recent years two trends have developed that were observed in the field work research on input standards. The first trend derives from the organizational approaches developed by ES agencies to utilize job banks. As a minimum, most areas have centralized order taking, referral control and verification functions, which necessarily created a strong interdependence among offices. In addition, many areas centralized employer services and other support functions. In the extreme case, one area has 10 to 12 service locations which provide only intake, selection and job referral services, with all other functions handled from a single central location. This trend has reduced the autonomy of the manager of each service location and has strengthened the role of the area or district manager, who participates in the formulation and implementation of policies, programs and procedures.

A second, related, trend is toward experimentation with different constellations of office locations and functional specializations. The experimentation is moving in many different directions relating to horizontal and vertical structures and the use of information technology. (See also Aller, et al, pp. 25 to 29.) This requires the involvement of the area manager in the selection of alternate service locations, the definition of functions, and the monitoring and evaluation of the results of each test. Again, the trend leads toward a stronger central manager and weaker local office manager.

The question of feasibility must be answered in the context of the complexity of different patterns of local office location, functions and structures, and the stability of such patterns. There are several types of local office specialization. As noted above, there is a trend toward experimentation with offices having a limited number of service functions. Traditionally, offices have specialized in service to specific occupational and/or industrial groups. The setting of local office output standards would require an evaluation of the effectiveness of each type of specification in different environments, then the translation of the results into standards, taking into account the causal chains implied in the model of the ES presented in Chapter II of this volume. As stated in Chapter II, considerable additional research and development is required to complete that model, and the volatility of the patterns would have to be reflected.

Our conclusion is that it is not feasible in the short run nor is it necessary to develop specific output standards for specific local offices in a multi-office labor area. Output standards for the labor area as a whole can be used by area management as one input in evaluating the performance of individual offices within the area. Failure of an individual office to achieve performance equal to or better than the standard for the area, or success of an office in exceeding the standard,

cannot be taken in isolation from other considerations relating to the location, structure and functions of the office in evaluating the overall success of a given office in meeting the objectives defined for it as one unit in the local ES service network.

b. Balance-of-state areas

Specific output standards adjusted for external factors cannot be set for most individual labor areas, due to lack of suitable data on labor force and unemployment for SMSA's other than the 150 major labor areas and lack of published data on employment for non-SMSA labor areas. Until the data gaps can be filled, we recommend setting standards for balance-of-state areas which include all labor areas outside the 150 major areas. Each state would have a single set of standards, adjusted for state-level external factors (net of employment, unemployment, etc., for any of the 150 areas within the state.) While usable for funding allocation purposes, the published standards would not apply directly to any labor area in the balance-of-state class. State ES agencies, however, can use internal estimates of the factors in conjunction with the estimating equation or typology to calculate output standards for individual areas. While not as sound as the published standards, these could be used as valid standards for internal evaluation purposes and perhaps as an input to planning the intra-state allocation of resources.

5. A dilemma in using output standards to allocate resources

It was implied in preceding sections that, following the philosophy applied in the BPF for previous years, a state whose overall performance was equal to the standard for the state should receive the same share of national ES resources in the next year as it had in the previous year (this ignores, of course, "productivity increases", definitional changes, and other factors that affect the total amount of resources available for allocation through the performance-based budgeting process.)

It is clear from examining the research results that, when all external economic and social, policy and law factors are taken into account, there would be quite a wide range in expected performance among the states, even if all states and areas had performance equal to their standard, because the standards will vary dramatically. For example, for FY74 at the state level, expected productivity estimates ranged from 89 to 206, with 4 states having estimates under 100 and 4 states having estimates over 190, nearly twice as high. At the labor area level, expected values for IP/U range from less than 10 to over 150!!

The wide range in the estimated standards computed to date with the incomplete model developed in this project is attributable to the wide range of economic, policy and other factors among the areas. Further refinements in the model may lead to even wider ranges in the standards, as more of the variation in actual performance is accounted for.

Therefore, if output standards are established for use in the funding allocation process, similar results can be expected, although the specific methods used will have a bearing on the resultant ranges of performance standards.

In theory, the purpose of reflecting the external factors in setting output standards which will be used in the resource allocation process is to adjust for factors beyond the control of ES management and to come up with standards against which ES management can be judged. States whose performance exceeds the standard are assumed to have good management and are to be rewarded accordingly, while states whose performance falls below the standard are assumed to have poor management.

The interpretation of the research results is that certain states having average management capability can reasonably be expected to have performance levels at least twice as high as certain other states also having average management capability. The credibility of the research results have been challenged, because on-site evaluations have identified numerous examples of poor management practices in certain areas where the statistical analysis results indicate that actual performance is equal to or better than the (low) standard; the converse is also true. One hypothesis (not easily testable) is that the environment in certain areas is so detrimental to ES performance as to produce organizational frustration, manifested as poor management, low morale, etc.

This leaves the policy maker with something of a dilemma:

> On the one hand, it is desirable to reward good management, implying that the absolute level of performance is not being judged, only actual performance relative to a reasonable standard. This approach is advantageous, particularly when in the past it has been the large northern and eastern states who have suffered most through BPF. If the standards are lower for such states, it is less likely that they will suffer cuts in the future.
>
> On the other hand, the ES exists to serve job seekers and employers who request its services. Irrespective of the quality of management or the stability of the service organization, it seems reasonable to allocate the resources to states where the greatest number of clients can be served. It is often argued that resource reallocations through the BPF have in some sense penalized the people living in the states losing resources.
>
> The converse of this argument is that leaving resources in states where actual or expected productivity is low (irrespective of quality of management) penalizes the

residents of states where productivity is high. For example, a state whose productivity is 200 individuals placed per man-year can serve twice as many people per unit of resource than a state whose productivity is only 100. Job seekers in the first state lose in the ratio of 2 to 1 when (marginal) resources are re-allocated to the second state.

The policy maker must address this dilemma, taking into account both the political and the program implications of different solutions, prior to deciding how the adjusted output standards should enter into the funding allocation process, if at all.

## Chapter IV

## METHODS FOR ESTABLISHING INPUT STANDARDS

### A. Introduction: Practical Definitions and Uses of Input

Input standards are models of the placement and placement support processes which can help diagnose the cause of poor performance when actual operations are compared to them. Their purpose is to help improve the Employment Service, particularly in local placement operations. The development of these standards is not a simple matter and the difficulties of the task were recognized from the beginning of the project. In fact, doubts have been expressed that standards could be established without first answering long range questions on the specific missions, purposes, objectives and roles of the ES such as, "Is the Employment Service primarily serving employers or serving applicants?" or, "Does the Employment Service aim primarily to maximize placements or to reduce the unemployment rate?" When this study was started these questions already had a long history; perhaps they will have as long a future. It was clear then that the ES could not wait for them to be answered; the practical needs for an effective tool to carry out the purpose of improving the placement process was too urgent. An effective response to the current demands for an effective and efficient Employment Service requires that adequate management tools be put into the hands of state and local managers as rapidly as possible.

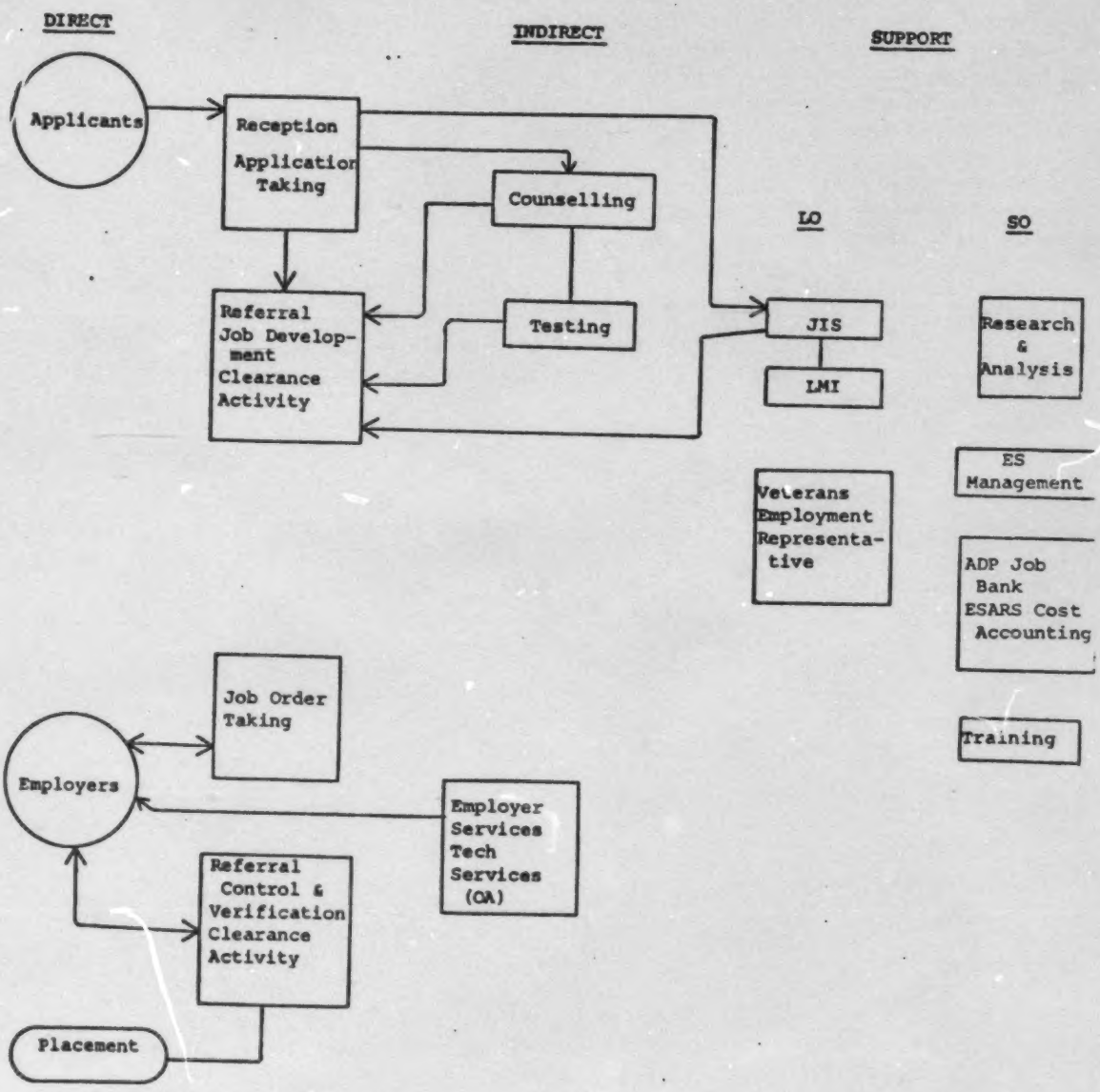
An Integrated Management System that combines the output performance evaluation components of the Balanced Placement Formula with diagnostic and prescriptive analysis can be developed without waiting for the answers to long range questions. Studies of the cost effectiveness of the placement process may take years; now there is an urgent need to make the current placement process as efficient as possible, at least until alternatives are developed, tested, and implemented. We therefore began our study by proposing a model for the placement process that depicted the current functional activities and the relationships between them.

An overview model is shown in Figure IV-1 on the following page. Resources allocated to each functional activity are inputs to the placement process. The inputs are assessed by comparing the actual performance levels with standard levels to be determined through methods described in this report. The efficiency of each functional activity is assessed by comparing the resources required for the measured performance level against the standard model resources. In this project we have performed the following tasks:

- Selection of the measures of performance.

FIGURE IV-1

PLACEMENT SERVICES MODEL



- Development of a method to measure the levels of performance for each functional activity.

- Development of a method to determine the resource requirements to meet those performance levels when the functional activities operate efficiently.

Our project was designed to set the stage for a larger survey that would establish the actual performance standards. Our objective was to develop methods which would be used in that survey. After developing the methods we tried them out in several locations to demonstrate their practicality and capability to develop the standards. In these pilot trials we developed a self-application procedure for conducting the surveys that will significantly improve the scope of the next step by reducing the need for a member of the study team at every site on every day of the survey. A Handbook for Analyzing Local ES Performance (Volume 4 of this report) has been developed for collecting time utilization data at the local level; for computing efficiency measures, service percentages, and key quality factors; and for collecting the data needed to establish and validate input standards. In addition, the Handbook can be used immediately for local office analysis.

To illustrate the form in which the data can be analyzed and some potential uses of the data, Table IV-1 on the following page shows the results of applying the methodology to two local offices. Part A of the table shows the percent of resources allocated to each category in the placement process. The categories were defined so that they can be related directly to codes used in the official time distribution system without being limited to those codes. (The alphabetic codes were developed and used in the data collection at the local office level to avoid confusion between time recording on the special survey time ladders and time coding on the time distribution sheets.) In addition to the items shown, the Handbook also contains methods for measured inter-activity ratios, such as referral-to-placement ratios, individuals counseled or tested as a percent of intake, etc.

ES input standards, when established, will provide a model, a measure and a comparison upon which ES management can build performance improvement plans. A primary use of the standards will be as a tool in diagnosing the causes of poor performance in labor areas that fail to meet output standards, not because these are the only areas that could achieve higher output performance, but because the performance-based budgeting system tends to give an incentive to concentrate on such areas. To use the standards, it is first necessary to perform the resource utilization measurements described in Volume 4 in the labor area(s) and local office(s) of interest and to calculate the several statistics that characterize input utilization. The results can then be compared against the appropriate standards for that type of labor area to identify differences which might indicate causes of poor performance.

Table IV-1. Example of Data Compilation from On-site Survey of 2 Local Offices

| | | | |
|---|---|---|---|
| A. | % Resource Allocation for Placement Process Component Activities | | |
| | Placement and Support Activities | LO#-1 (%) | LO#-2 (%) |
| | AT APPLICATION TAKING | 8.1 | 14.5 |
| | CS COMMUNITY SERVICE | 4.0 | 0.6 |
| | CO COUNSELLING | 2.3 | 11.0 |
| | ES EMPLOYER SERVICE | 6.1 | 2.2 |
| | FC FILE SEARCH/CALL-IN | 7.1 | 1.0 |
| | JD JOB DEVELOPMENT | 2.7 | 4.6 |
| | JIS JOB INFORMATION SERVICE | 1.5 | 2.1 |
| | JO JOB ORDER TAKING | 1.9 | 2.7 |
| | RE RECEPTION | 4.5 | 6.6 |
| | RC REFERRAL CONTROL | 4.3 | 0.3 |
| | RI REFERRAL INTERVIEWING | 9.8 | 11.3 |
| | TE TESTING | 2.5 | 0.1 |
| | VE VERIFICATION/VALIDATION | 2.0 | 1.3 |
| | Subtotal | 56.8 | 58.3 |
| | Non-Placement Activities | | |
| | XC CETA | 0.0 | 1.6 |
| | XE EFS STUDY | 0.5 | 1.0 |
| | XF CLERICAL | 11.2 | 8.9 |
| | XI SICK | 4.4 | 2.4 |
| | XJ JOB CORPS, FOOD STAMP, UI, ETC. | 1.0 | 2.7 |
| | XM MEETING, TRAINING | 6.6 | 0.4 |
| | XS SUPER., MANAGEMENT, ETC. | 6.5 | 4.4 |
| | XV VACATION, ANNUAL LEAVE | 5.8 | 5.0 |
| | XX PERSONAL, COFFEE BREAK, ALL ELSE | 7.2 | 15.3 |
| | Subtotal | 43.2 | 41.7 |
| Total | | 100.0 | 100.0 |
| B. | Selected Service Ratios (Percent of Traffic) | | |
| | Application Taking | 44.0% | 46.9% |
| | Referral Interviews | 60.5% | 51.9% |
| C. | Selected Quality Factors: | | |
| | % Responding Employers Answering YES | | |
| | Does an ES representative contact you regularly? | 75% | 43% |
| | When an ES representative visits you, does he/she appear to be knowledgeable of the current labor market? | 93% | 50% |
| D. | Monthly Placements per Equivalent Position | 45.8 | 28.6 |

Pending the establishment of input standards, the results of the measurement can be utilized by comparing the statistics with existing sources of related information. The local office manager has planning and budgeting standards of comparison for resource utilization and service ratios from the Plan of Service System and has data on performance per unit of resources from POSARS. Comparing the results of the survey with the data from official sources, the manager can compare his actual resource utilization and intermediate outputs with his plan, and can validate the official figures. He can also review the data on key quality factors for each activity against available (published or personal) standards of performance and identify staff training needs in the state-of-the-art.

The area manager or field supervisor, given data from several local offices, can compare input resource utilization with intermediate and final outputs to identify potential areas for correction. In Table IV-1, for example, LO 2 has a much lower number of monthly placements per equivalent staff position than does LO 1. LO 1 devotes relatively more resources to employer service and to file search and call-in, and less to application-taking and counselling. It has higher service ratios for application-taking and counselling. It has higher service ratios for referral interviewing, and a better rating on employer service quality factors. A field supervisor could use such comparative data, even in the absence of validated standards, to examine the causes of such differences, including the effects of external economic factors, etc., and to develop a plan for improving performance in the second local office.

This example illustrates the potential for applying such methods in the diagnostic process even on an interim basis. It also illustrates the potential pitfalls of applying validated standards. Input standards can be developed in accordance with the methodology and plans, which standards can never be used in a rote cookbook manner to prescribe changes in the organization or functioning of the ES. The need for such changes must always be identified on the basis of sub-standard output performance, and corrective plans must always take into account the specific realities and constraints of the individual labor area. The Handbook for Analyzing Local ES Performance, (Volume 4 of this report) describes in detail how raw data can be collected, how the data can be compiled into standard forms, how observed patterns can be compared to the standards, and how the comparison can be used in developing performance improvement plans.

The ideal objective of the next major phase of input standards development would be to establish and validate patterns of resource use, service ratios, and efficiency and key quality factors that discriminate between areas having high levels of

output performance (under given sets of external conditions) and all other areas. However, the current state-of-the-art does not permit the "validation" of input standards. Validation of standards requires the analysis of input patterns in relationship to output performance, and the identification of input patterns that discriminate between high performers and low performers, holding all other factors constant.

The use of output standards and the comparison of actual performance with the standards permits identification of high and low performing labor areas, holding constant the effects of external economic and policy factors. To validate input standards additional factors must be held constant: local office location, overall management quality, staff skill level and morale, and quite possibly the mix of applicants and job openings. This would permit the observed patterns of inputs to be tested, net of all other influences, to identify those patterns which discriminate between high and low performers. While techniques have been developed for measuring location and management quality, they have not been sufficiently tested and integrated into a comprehensive system to permit us to factor them into an analysis in the immediate future.

Therefore, an achievable short-run objective is to identify patterns of input utilization characteristic of high performing labor areas and of offices within those areas, ignoring the other internal factors and deferring the question of validation to a future time when the state-of-the-art permits validation. The steps needed to achieve the objective include measuring input utilization in a sample of labor areas, identifying input patterns, and preparing input guidelines for different types of labor areas. The steps outlined in this chapter are designed to finalize these patterns. The recommended approach will result in the setting of standards for each of the 13 functions identified in Table IV-1, based on the average level for each measure in high performing offices in each type of labor area. It is quite possible that when it becomes possible to validate input, it will be found that not all of the functions nor all three measures of each function discriminate between high performing areas and other areas. It is further possible that periodic revalidation of the standards will show that different functions or measures are valid, as ES service objectives and methods change over time.

The current status of the program for development of ES input standards is that methods have been developed and tested: for measuring the utilization of ES staff time in the local office in performance of 13 placement and placement support functions and 9 non-placement (overhead) categories, measuring activities and services resulting from placement functions, and measuring key quality factors associated with those functions; for computing ratios, minutes per unit of service, and

resource distributions; and for aggregating results to the labor area level, and, where feasible, to the state level. Section B. of this chapter presents plans for classifying labor areas by type and for selecting samples of labor areas and local offices for different data collection purposes, data analysis problems, and implications for validating and revalidating standards. Section C. discusses an additional use of the data.

## B. Methods of Data Collection and Analysis

The measurement of ES staff time utilization and service patterns for all of the approximately 25,000 to 30,000 ES staff members in all 2500 to 3000 service locations is neither necessary nor desirable for collecting the data needed to establish input standards. The problem is to design an efficient, practical approach to selecting a sample for the measurement, the results of which can be used to establish input patterns characteristic of high performing labor areas of different types. The recommended design is a stratified sample of labor areas resulting in a sample of about 10 percent of ES local offices and staff.

### 1. The sample of labor areas

As stated previously, the labor area is the preferred unit of analysis, because it is an integrated economic and social system within which the ES provides services. For practical purposes, the relevant size of the universe is the 150 SMSA's that are defined as major labor areas plus 48 balance-of-state areas.

The first step in the sample design is to stratify labor areas by external economic conditions found to be significantly related to ES output performance. The factors identified in previous research are size, the stable ones of industry composition, and labor force composition; and the more volatile ones of unemployment and growth. The actual stratification or grouping of labor areas by type can be done using these variables (or others found significant in further development of output standards) and the combination of factor analysis and hierarchical clustering as described in Chapter III.C. 1.b. The result would be groups of areas as similar as possible to each other within each group. Therefore, the groupings would be used not only for sampling but also for the typing of areas in setting standards. For the purpose of using the input standards, the list of the labor areas in each type must be published along with the standards for each type.

Using the comparison of actual performance versus output standards, labor areas can further be stratified into high, medium and low performance groups. If the concept

of a standard error or standard deviation is used as the criterion, then within each stratum, 1/6 of the areas would be high performers, 2/3 would be medium performers, and 1/6 would be low performers. Across all strata there would be about 33 areas in the first class, 132 in the second, and 33 in the last.

The next step is to use the stratification to select an actual sample of areas. If it were feasible to both establish and validate input standards, then either of two sampling approaches could be used. One would be to select a sample representative of the entire universe; multi-variate statistical analysis techniques would be used to identify the input elements correlated with higher performance. The other would be to select only high performing and low performing areas within each type: analysis of variance could be used to identify the input measures that discriminate between high and low performing areas.

Both approaches would encounter difficulties in a sample of 50 areas, because the number of observations in each class of area might be too small to permit use of the statistical techniques, requiring the combining of strata or the use of only a few strata to start with.

Given that it is not possible at the present time to validate the input standards, one reasonable recommendation is that the sample be limited to the 33 high performing areas, using the data within each type to calculate averages for each of the input measures. Even this approach may encounter problems of a practical nature. Research completed to date using data from 80 SMSA's and 48 balance of state areas results in only one of the 12 largest SMSAs falling into the high performance group. None of the three largest, containing about 120 or 5 percent of the nation's ES offices and possibly as much as 10 percent of the nation's ES staff, would be in the sample based on available results. Since all three are different from each other when measured by both internal and external factors (except size), since they seem to be different from other areas, and since they consume such a large share of ES resources, it seems highly desirable that they be included in the sample.

A feasible solution to the problem is to divide the universe into two parts: SMSA's over 1 million in population, and major labor areas under 1 million in population plus all balance of state areas. The 12 largest SMSAs are estimated to contain approximately 210 local offices and 3800 staff, or about 15 percent of the

national staff total. Data collection within such areas, while important to the total national picture, requires further stratified sampling. It is quite possible that the prior factors in the causal chain, particularly the location of offices, would have a dominant effect on ES performance in large SMSA's with complex transportation; taking this effect into account, it would be necessary to stratify local offices by functional specialization and by occupational/industrial specialization. It might also be necessary to sample work units within local offices, stratifying by functional unit and even by job description. The data are not currently available to begin to propose a plan for such sampling, and it is recommended that measurement of input patterns in these areas be deferred to a later phase in the development of input standards.

The recommended sample, then, reduces to selection of the high performing labor areas from among the remaining 138 major labor areas, of which there would be 23, plus the high performing balance-of-state areas, of which there would be about 8. It is estimated that the 23 SMSA's should average between 5 and 10 local offices, while balance-of-state areas should average about 30 local offices. If the 23 SMSA's averaged 7 offices, all could be included in the survey for a total of 161, leaving 39 offices to be selected from the 8 balance-of-state areas. The highest 5 performing offices per state could be selected based on state data. Using this design, the balance of state areas would be a single stratum with 3 members. The 39 offices selected would constitute a 16.8 percent sample.

The recommended method would result in a sample of 200 offices containing an estimated 2000 staff, about 9.4 percent of the staff outside the 12 largest cities. Returning to the question of the appropriate number of strata, excluding the classification by output performance in relation to standard, it appears that a desirable number would be 7 classes of areas, allowing an average of 5 or 6 areas per class of SMSA plus 8 areas in the balance-of-state stratum, which would permit a computation of the variation among areas within each class to accompany the computed average for each performance measure for each type of area.

2. The sample of time

The data collection design presented in Volume 4 discusses the choice of a one-week period in which to conduct the survey in each local office. The period of data collection is limited to a one-week period to minimize the burden, and it is recommended that the survey be done in a continuous

five-day period to maximize training effectiveness. The one-week constraint raises the possibility that sample results will be unduly affected by seasonal factors, by unusual local conditions and by the sampling error. Each of these aspects needs further consideration.

It is quite likely that seasonal factors will influence the results of the data collection. If collected in the Fall staff time utilization patterns and service ratios may reflect a general seasonal decline in hiring activity, while data collected in the early Spring could show the opposite effects. Data collected near the end of the school year would show the seasonal effects of large numbers of youth applying for summer jobs. Data collected in the Summer might show the effects of temporary ES staff reassignments and absences to cope with the traditional vacation period. Holidays occurring within a survey week might shift work loads or leave factors. It is strongly recommended that a survey week be chosen in conjunction with state ES management that does not contain a holiday. Beyond this, the only known method for adjusting for seasonal effects is to collect data during each season (perhaps during the mid-month of each calendar quarter) and compute an annual average.

The extent to which unusual local conditions during survey week may affect results is less clear. Obviously, if a major training program, management review, or other controllable event is scheduled, the survey would yield a higher than normal percentage of nonplacement time, and it is recommended that the data collection be scheduled away from such events. It is also possible that major changes in economic conditions, such as a massive layoff, could affect performance in a given area. It seems likely, however, that the effects of such events related to the business cycle would average out over a number of similar labor areas. The only feasible adjustment method would be to sample at different points in the business cycle. This could be combined with the quarterly measurement plan discussed above.

The sampling error associated with the survey week can be computed. Since the national average leave factor is about 15 percent, the average number of weeks worked by ES staff nationally is about 44.2. One week, therefore, is a 2.26 percent sample of each staff member's time on the average, if leave taken during the week is excluded from the calculations. If time is sampled quarterly, this results in a 9 percent sample of time. Sampling error,

which assumes an unbiased estimate of the true value, is a function of the square root of three factors. It increases with the measured variance. It decreases with an increase in the sampling fraction, but the relative increase in sampling error for percentages is only 3 percent for an increase from a sampling fraction of 2 percent to a sampling fraction of 9 percent. More importantly, the sampling error decreases with an increase in the sample size. For the current problem, this is important only with respect to the balance-of-state estimates, where the number of offices per state is small. However, since the balance of state is treated as a single area in each state for which the estimates are to be computed, the relevant number is the expected number of staff (estimated at 40 per state) rather than the number of local offices.

3. Computation of input standards by type of labor area

The data collected from the sample of labor areas will be used to compile the four types of input measures for each of the 13 functional activities and nonplacement time for each of the 31 sample areas, using the detailed methods contained in the Handbook for Analyzing Local ES Performance. The result will be 31 sets of input measures.

The data for the areas would be grouped by type of area - 5 or 6 SMSA types and 1 balance-of-state type. To calculate the input standard for each type of labor area requires two related computations. The first step is to calculate the average across areas within each type for each of the input measures, minutes per unit, service percents, percent of resources, and key quality factors. (Of these, only the percent of resources is relevant to nonplacement time.) The average for each measure is the initial input standard for each ES function. The second step is to compute the standard deviation for each of the measures. The standard deviation will be published along with the average to indicate the extent of variation observed.

Table IV-2 on the following page shows an example of how the resultant input standards would look when published for one type of labor area. In using the standards, ES management would look up the particular labor area under review in the list of labor areas by type, then consult the tables of standards for that type of labor area.

Table IV-2. Example of Quantitative Input Standards

| Activity | | Unit Costs Minutes Per Unit Quality | Resource Use Percent of Total Resource | Service Percents | Quantitative Measures of Component Activity |
|---|---|---|---|---|---|
| RE Reception | Average | 3.0 | 4.5 | 5.0 | |
| | Range* | 1.0 | 0.5 | 1.0 | |
| AT Application Taking | Average | 11.5 | 8.2 | 44 | 0.025 |
| | Range* | 1.5 | 1.0 | 10 | .010 |
| CO Counselling | Average | 36.3 | 2.1 | 42.5 | 2 |
| | Range* | 5.0 | 1.5 | 10 | 0.5 |
| TE Testing | Average | 12.1 | 2.5 | 7.0 | 0.007 / 0.15 / 0.050 |
| | Range* | 1.0 | 0.5 | 2.0 | 0.002 / 0.05 / 0.005 |
| RI Referral Intervieiwng | Average | 10.1 | 9.8 | 60 | 0.40 / 4 |
| | Range* | 2.0 | 1.0 | 15 | 0.05 / 0.5 |
| FC File Search/Call-In | Average | 5.3 | 7.1 | 56.0 | |
| | Range* | 1.1 | 1.2 | 20 | |
| JI Job Information Service | Average | 4.8 | 1.5 | 15 | |
| | Range* | 0.5 | 0.7 | 5 | |
| OT Order Taking | Average | 13.4 | 1.9 | 1.0 | |
| | Range* | 2.0 | 0.7 | 0.1 | |
| RC Referral Control | Average | 4.3 | 4.3 | 180 | |
| | Range* | 0.5 | 0.5 | 40 | |
| VV Verification/Validation | Average | 1.7 | 2.0 | 385 | |
| | Range* | 0.2 | 0.2 | 70 | |
| ES Employer Service | Average | 103.1 | 6.2 | 30 | |
| | Range* | 30.0 | 1.0 | 5 | |
| CS Community Service | Average | | 4.0 | | |
| | Range* | NA | 2.0 | NA | |
| JD Job Development | Average | 5.9 | 2.7 | 50.0 | 0.2 / 0.50 |
| | Range* | 1.0 | 1.0 | 10 | 0.05 / 0.05 |

*Range is equal to the average plus or minus one standard deviation.

## C. Aggregating and Disaggregating Input Standards for Use at the Local Office, State and National Levels

As in the development of output standards, the methods for developing input standards lead to standards characteristic of labor areas, more specifically the 150 major labor areas for which data on external economic and policy factors is available plus balance-of-state areas. For reasons discussed in more detail in the previous chapter, we believe that both output and input standards should be set and used primarily at the labor area level, because this is the level at which ES resources are applied in service to an integrated economic and social system, although for practical reasons it is not possible to do so for individual areas outside the 150 major labor areas, at the present time.

There is, however, considerable interest in the use of performance standards in local offices which requires disaggregation below the labor area level, and in state and national offices, which requires aggregation above the labor area level. The subject was discussed with respect to output standards in the previous chapter, wherein a weighted averaging methodology was described for using output standards at the state level.

For using input standards at the local office level, one class of the measures can be applied directly. These are the key quality factors associated with each activity. The field work for this project leads us to believe that the specific measures of quality are generally applicable to any office, because they represent significant dimensions of the accepted state-of-the-art for performing ES services to applicants and employers. The data collected for the purpose of establishing input standards should be analyzed to test for variations among areas.

The use of standards for minutes per unit of service, service percents, and percent of resources will vary depending upon the type and degree of specialization of offices within an area. If offices are not specialized in any way, the standards may be applied directly. If offices are specialized along occupational/industrial lines, the mix of applicants will vary among offices, and the minutes per unit and the service percents will also vary. The methods developed to date would not permit derivation of a standard for each local office. If offices are specialized along functional lines, an estimate of the percent of resources can be derived from the standard for the area by assuming a constant nonplacement percent and reallocating the standard percents among functions performed in the office under study. For example, consider an office whose functions are limited to reception, application taking, referral interviewing, file search and call-in, and job development, with all other functions performed centrally within the area. As shown in Table IV-3, if the share of nonplacement time remained constant, the placement time would be allocated among the 5 functions.

Table IV-3. Calculation of Percent of Resources for a Limited Service Office

| | Labor Area Percent of Resources (1) | Local Office Functions (2) | Percent of Resource Allocation by Function** (3) |
|---|---|---|---|
| RE | 4.5 | 4.5 | 11.9 |
| AT | 8.2 | 8.2 | 21.8 |
| CO | 2.1 | | |
| TE | 2.5 | | |
| RI | 4.5 | 4.5 | 11.9 |
| FC | 7.1 | | |
| JI | 1.5 | 1.5 | 4.0 |
| OT | 1.9 | | |
| RC | 4.3 | | |
| VV | 1.7 | | |
| JD | 2.7 | 2.7 | 7.2 |
| ES | 6.2 | | |
| CS | 4.0 | | |
| X | 43.2 | 43.2 | 43.2 |
| Subtotal Percent of Non-placement Time | 43.2 | | 43.2 |
| Time to be Allocated* | 56.8 | | |

*Computed by subtracting nonplacement (X) percent from 100.

**Compute by:

(1) Add up the standard placement percents in col. (2). Total is 21.4

(2) Divide the total by the share of time to be allocated, 56.8. 21.4/56.8=.3768

(3) Divide each standard placement percent by the result (.3768) to obtain the allocation for the local office.

Aggregation of input standards to state or national totals encounters similar problems. Key quality factors probably can be used without aggregation. Certain of the minutes-per-unit measures can be aggregated through a weighted summation process, where the weights are the share of the state's service units in each type of labor area. For example, the minutes per unit for counselling can be aggregated by multiplying the standard for each type of labor area by the percent of applicants in that type of labor area, then summing to a state total. For measures where the denominator is not a statistic or service reported to ESARS, such as call-in attempts, the aggregation can only be performed if the activity has been measured in all local offices and areas. A similar problem pertains to the service percents. A state standard for percent of resources can be computed by weighting the standard for each type of labor area by the share of state man-years in that type of labor area, then summing to a state total. The logic of these calculations can also be applied to the computation of national standards.

An important question with respect to the computation of input standards at the state or national level is the interpretation and use of the results. Input standards can serve the management of the Employment Service as a diagnostic tool and an aid in planning for improvement. In our concept of an integrated management system, the diagnostic tools (input standards and others) are called into play primarily when there is a measurement indicating that the labor area has achieved poor performance. In other special cases, state management might wish to conduct a Performance Standard Survey in a large city in the state even if that labor area had good performance because of the importance a large labor area has in the state as a whole. Management might reason that even a small improvement on a good operation in a large area would be more beneficial than a large improvement they might achieve in the smaller areas in the state. The important point about all of this is that input standards are utilized after the output standards have indicated where the high and low performers are. They assist management in reaching the potential of each labor area in the state and they are never used without an analysis of the output performance first. Although it may be desirable to estimate the optimum percent of applicants who should be counselled or the optimum share of resources to be devoted to a particular activity, the current stage of development only permits us to identify what high performers have actually done. We can say "what is" as far as high performers are concerned; we are not yet able to say "what should be".

## Chapter V

## A PLAN FOR DEVELOPING AN INTEGRATED MANAGEMENT SYSTEM

The preceding chapters of this volume have detailed the concepts and methods developed to date for the establishment of output and input performance standards for the United States Employment Service. The purpose of this chapter is to define the specific steps that can be taken to implement ES performance standards during the next 12 months, to present approaches to further steps that would be needed in the future, and to summarize the conceptual and practical limitations of the performance standards that would result from the recommended methodology.

### A. Plan for Establishing ES Performance Standards

There are three crucial milestones that should be met in the next year in the development of ES input and output performance standards. The first of these is the beginning of the Fall hearings on the ES budget at OMB, which start on or about October 1, but delays in completing the present report may preclude meeting that date. The plan presents steps that would result in an initial set of ES output standards based on a static model that could be used to project ES performance for FY 1977, as one input to the budget process. The next milestone is the date for publishing ES funding allocation to the regions and states. In the past this date has come in February, although with FY 1977 beginning October 1, instead of July 1, the date may be delayed. The results of the development of output standards for use in the funding allocation process must be available for use in the performance-based allocations. The third milestone is June 30, when the results of the input standards development should be available for publication and distribution to the states.

The following specific tasks and schedule are recommended as the minimum to implement static output and input standards.

1. Develop Static Output Performance Standards and Projection Model

   a. Data collection (9/1 - 9/30)

      The basic data to be used are available for each state and for 150 major labor areas. In actual practice output standards could be established for each of the 150 labor areas and for 48 balance-of-state areas. (Puerto Rico lacks data on external economic factors; Alaska performance is abnormal due to pipeline activity; Washington, D.C. is a metropolitan area only; and Rhode Island consists almost entirely of the Providence SMSA.)

(1) ES performance data is available from ESARS Tables 12, 22 and 91B. At present, these tables are transmitted to the national office (OAM) for 80 SMSA's and 52 state agencies. It is recommended that the tables for FY 1975 be obtained for the remainder of the 150 major labor areas and for individual cost centers within them.

(2) ES cost data is available from the Cost Accounting System, but only state totals are currently sent to the national office. Preparation of man-year estimates by labor area requires that Report 03 be obtained from each cost center using Title III grant funds in each labor area.

The sum of the actual hours charged to 5xx and 6xx time codes (exclusive of special projects within those codes) is the total hours applied to the placement process in each cost center.

The SMSA total is the sum of the cost centers within the SMSA. This total can be divided by any arbitrary standard work year (such as 2040 hours) to obtain comparable estimates of man-years worked, adjusted for differential leave rates and hours of work.

(3) Annual labor force data (employment and unemployment) are published in the annual Manpower Report of the President. Monthly data are available from "Area Trends in Employment and Unemployment."

(4) Labor force composition data is available only from the 1970 Census, and is published in convenient form in the County and City Data Book, 1972.

(5) Industry composition, employment and growth data are published monthly in "Employment and Earnings" with annual averages in the May issue.

b. Data analysis and model definition (9/1 - 10/31)

(1) Develop structural equations from the hypotheses in Figure II-3.

(2) Test hypotheses and structural relationships to identify the statistically significant environmental factors and the best specification of factor.

(3) Test alternate methods for setting standards:

(a) Develop equation(s) for computing adjusted performance averages.

(b) Develop typology and compute averages and standard deviations within type.

(4) Combine data from cost centers to level of SMSA parts and test methods for setting standards in SMSA parts of multi-state areas.

c. Implement output standards model (11/1 - 12/31)

(1) Write computer programs to implement the accepted method for setting output standards, the methods for comparing actual performance with the standard, and the method for computing state summary scores.

(2) Compute expected values and deviations between actual and expected performance for each labor area and state for FY 1975. Publish standards for dissemination.

(3) Write programs to compute resource allocations, total and marginal, by state.

(4) Design an ES output simulation model and simulate ES performance under different resource allocation assumptions.

d. Develop ES Input Standards (9/1/75 - 8/31/76)

(1) Select a stratified sample of areas using initial output standards and typology to identify high performing areas by type of labor market. The recommended sample would include about 31 areas, 200 offices and 2,000 staff (12/1/75 - 12/31/75)

(2) Prepare regions and states to collect data (2/1/75 - 2/28/76)

(a) Publish list of sample areas.

(b) Consult with regions and states.

(c) Train regional survey teams.

(3) Data collection (3/1/76 - 3/30/76)

(a) Collect data on time utilization and quality factors using Handbook techniques and materials from Volume 4 of this report.

(b) Collect performance data from sample LOs for use in computing service ratios.

(4) Data analysis (4/1/76 - 5/31/76)

(a) Analyze time distributions vs. cost accounting system.

(b) Analyze time distributions, service ratios, quality factors, etc.

(5) Establish input performance standards by type of labor area, publish standards, and publish list of labor areas by type of area (6/1/75 - 6/30/76)

e. Implement Performance Standards Utilization System (10/1/75 - 8/30/76)

(1) Provide handbooks and train regional staff to interpret output standards and apply them to labor areas.

(2) Provide handbooks and guidelines for applying input standards and other diagnostic tools.

(3) Provide training and technical assistance in developing performance improvement plans using an integrative approach.

2. Develop Dynamic Output Performance Standards and Projection Model

In addition, it is recommended that work begin in parallel on the development of a dynamic output performance standards and projection model, as a crucial next step in developing tools for evaluation and (possibly) funding allocation that adequately reflect the effects of inter-temporal variations in economic conditions on ES performance. Some of the tasks in the development might be as follows:

a. Model definition

(1) Define hypotheses for time-dependent relationships between external factors and ES performance: stable economic factors, volatile economic factors and policy factors.

(2) Specify structural equations in an ideal model.

(3) Specify equations in a practical model.

b. Data collection may be limited to recent periods during which national ES policy was relatively constant and for which performance data are available. It may be feasible to collect data from the sources listed above for the following:

(1) Quarterly performance data from 150 major labor areas and from balance-of-state areas for 7/1/74 to 12/31/75.

(2) Quarterly data on external factors for the same areas from 1/1/74 to 12/31/75.

(3) Quarterly staffing data for 7/1/74 to 12/31/75.

c. Data analysis

(1) Analyze quarterly changes and rates of change of external factors in relation to ES performance.

(2) Test alternate lag factors.

(3) Test equations in the structural model.

(4) Develop seasonal adjustments.

d. Finalize dynamic model for use

(1) Simulate expected performance and deviations for FY 75.

(2) Project performance for the 1st half of FY 76 by state and labor area, and compare actual with projected.

(3) Compute optimum resource allocations.

(4) Simulate ES response to changes in resource allocations, economic conditions and policies.

One of the most important tasks in the development of ES performance standards is not listed in the above schedule. That is the task of maintaining close contact with ES management at the national, regional and state level. Unlike many other research and development efforts, the development of ES performance standards is decision-driven: the results will be used to make decisions about ES budgets and resource allocations almost as quickly as the products are available. The development program will utilize methods that are unfamiliar to many and will yield results that can have a revolutionary impact on the ES system. For this reason, it is recommended that specific resources be earmarked for the purpose of supporting immediate uses of results in the BPF and other applications in parallel with development tasks.

Certain significant policy questions have already been identified and others will arise that will require decisions to permit the program to proceed. Furthermore, the products of the program should be delivered to state and local administrators in a form that is understandable and usable

without extensive on-site technical assistance. ES officials at all levels have an excellent practical instinct for identifying research and development results that do not "make sense."

Close consultation with ES decision-makers at all levels can help to insure that the development program remains grounded in reality and that usable products can be developed within the very tight schedule. It is recommended that a full time project monitor be assigned for the program, to meet at least weekly with the project director. Monthly briefings should be held with all Associate Manpower Administrators or their assistants to review work completed during the past month and the schedule for the coming month. In addition, it is recommended that a steering committee including national, regional and state ES officials be established to meet and review significant products. These steps can help to insure timely delivery of usable results on a schedule that meets the needs of decision-makers.

B. Further Development Steps

At the end of the one-year program outlined above, usable performance standards will have been developed, but there will remain the need for further research and refinement. Although no specific schedule can be developed at this time, it is useful to summarize the major items.

1. Validation and Revalidation of Performance Standards

The need for validation and revalidation of performance standards relates to both output and input standards. For output standards, validation implies further research and examination of the basic model for projecting ES output performance to test the relationships between factors hypothesized to have an effect on performance and actual performance. As data become available on additional factors, these will need to be tested and incorporated into the model. In addition, as more time series data become available on ES performance, the parameters of the dynamic model will need re-estimation. Finally, as research proceeds on the specification of ES objectives and measuring performance in relation to those objectives, the basic elements of the model may change.

For input standards, it has already been stated that it is not possible to validate the standards at the present time, because the optimum configuration of input resources depends upon other prior internal factors such as the mix of applicants and openings received, the location of

ES offices, and the overall quality of ES management. Validation in the future will require that methods be used to control for such factors and that data on input utilization be collected from a sample of offices representative of the full range of output performance, external factors and internal factors. Revalidation of input standards, once established, will be needed to ascertain whether or not changes in policies and management approaches have altered the patterns of input utilization that discriminate among high and low performing areas. Revalidation will require new surveys. These could be done on a three-year rotation basis, revalidating selected types of areas each year. It is recommended that a revalidation program be integrated with a quarterly ES staff time utilization sample.

2. Integration with other research and development results

Research is currently underway to test methods for estimating ES performance potential. During the coming year, there will be at least five research and evaluation projects undertaken to improve measures of ES productivity; to examine the effects of mandatory registrations and other ES enforcement activities on ES productivity; and to evaluate counselling, job information services and employer services. During the past year, methods have been developed or refined for assisting in the location of local offices and for evaluating significant dimensions of the overall quality of management. While specific steps can and should be taken to coordinate the development of performance standards with all of these, it is virtually certain that findings will emerge during the next year that can only be integrated into the overall ES management system as a part of a continuing program for refinement and improvement.

## C. Limitations of Performance Standards

The basic purpose of performance standards is to provide guides and methods for improving the quality and quantity of service provided by the Employment Service. These and other approaches which aim at the improvement of Employment Service performance must take into account realistic limits on the improvements achievable by ES management. Many factors affect the operations of a local ES such as the external labor market, the general economic conditions in the community, the attitudes of the staff, and the skill levels of the staff. These internal and external factors combine to create a style of operations and a pattern of achievement for each local office. Past history, past perceptions, and past policies also effect this picture -

even when present conditions have been radically changed and even when considerable time has elapsed, since past conditions existed. Much of the actual operations are determined by factors external to the ES or out of the control of local managers; therefore current management practices can influence only a fraction of total achievement.

The input standards focus upon the internal operations of the ES in a local office or labor area; they can only be used to improve that fraction of total achievement influenced by local internal factors. The methodology treats these internal factors in an analytical or reductive manner. It breaks down the placement process into component activities and treats each as a separate component. The result of applying the method yields a measure of the separate component activities actually carried on in the local Employment Service and a comparison of those activities with "standards".

Differences between the actual and standard activities are then interpreted as clues for spotting weak areas and for developing a plan for improvement. Operations in the local office, however, actually involve a good deal of interaction among these components and with all the external and internal conditions influencing ES performance. Effects of the interaction among components are not directly measured by the recommended methodology. Therefore, performance standards deal only with a portion of these many factors subject to objective measurement and numeric expression. (The qualitative measurements that have been developed are tied to separate component activities and do not directly effect the overall environment in which the ES functions.)

The potential for improvement, however, must be expressed and accounted for in any improvement plan, in answer to this question: What can we expect this local Employment Service to achieve, given the external factors in the community? One currently feasible way to answer this question is to apply statistical analysis to develop performance adjustment equations; another is to group areas based on individual external factors. Both methods yield output standards that are derived from a best fit to the data on the effects of external variables and on measures of ES performance. The results tell us what an average office operating in a particular environment would achieve, given the external factors. The differences between expected and actual achievement should be entirely due to differences in internal ES factors between the particular local office and the average.

However, neither method for setting output standards is based on a complete model of causality. Even after applying the methods, we might still ask how these external factors operate on the expectations and work patterns of the local office staff. A strictly statistical approach may not provide insights into these human factors. We may find that the patterns revealed by measuring separate activities lead to questions that can be answered only after investigating the human integrative issues in the Employment Service. Such integrative issues are particularly significant for the manager - the key individual in the local office. State administrators have often said that if they knew the name of the manager they could tell how the local office has performed. The analytical, reductive approach might reflect these holistic factors indirectly but, by itself, it may not provide the key information for an improvement plan. Therefore we should apply the performance standards methods cautiously while maintaining a sensitivity for the broader effects. The basic purposes of the Employment Service are important in this context. We might ask: What is this office trying to do? What are the goals of the ES in this community as perceived by the local managers? How are they measuring the achievement of the ES in meeting these goals and are these the appropriate goals?

The ES output performance goals underlying the recommended methods for establishing performance standards are as expressed in the Balanced Placement Formula. If the state or the local managers of the Employment Service are not trying to achieve the goals represented by this formula the diagnostic methods of the input standards may not apply. If they <u>are</u> trying to meet these goals and if they accept the BPF-type measures as appropriate and performance standards measures of component activities as sound, we believe the method will lead to improvements.

But the input standards must be applied cautiously, with these caveats in mind, and with an understanding of the holistic relationships; otherwise, a mechanical application of the method will be unrewarding. For example problems might derive from the morale and skill level of the local staff which are caused by such factors as the prevailing salaries, State Civil Service policies, and past practices in the State agency. The performance standards cannot directly measure these effects; it can only reflect them. In other cases the achievement of high scores on a BPF-type of measurement might conflict with programmatic goals of the agency. In our survey of 18 local offices we observed such practices, but we have not been able to quantify or codify these observations; they remain at the level of local situational observations. The foregoing

discussion of the holistic effects of ES organizational behavior lead us to expect that such practices cannot be made explicit through a reductive method such as performance standards. If these holistic effects are over-riding the effects of the measurable parts as determinants of ES achievement, if they underly everything else, then we have only begun the research that is needed: research on the integrative effects.

The problems in applying performance standards are parallel to problems in sociological research associated with the controversy over "operationalism" that reached its height in the 1930's and 1940's. In summary this controversy centered around the differences between measurable quantities and theoretical concepts.* Our problem is similar because we are trying to express the underlying goal and the causal relationships between ES staff organizational behavior and achievement of those goals by reducing these factors (goals and organizational behavior) to measurable quantities which are then the data of our method. The capacity to truly develop insights into ES achievement through the use of these methods depends upon the validity of such measurements in expressing the achievement of goals and the behavior of the ES. Our approach (largely analytical and reductive) necessarily eliminates integrative factors, indeed even if we could measure those factors we anticipate that the techniques would be too complicated for practical application.

The Performance Standards Method is offered here as a tool in the armamentarium of the ES manager; it is not the total answer to management's needs for analysis. In some cases the problems are caused by "political" and socio-economic factors that underly the measurement of component activity. Effective planning for improvement should recognize these cases and the connections between the "political" factors and component activities; the efforts for change should then be applied to those factors that underly the problem.

*For a detailed discussion of these problems see H.M. Blalock and A.B. Blalock "Methodology in Social Research". McGraw-Hill, 1968.